THE IRON TRADE REVIEW

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BETTER TONE

NOW PREVAILS IN PIG IRON MARKET.

But Sales Are Small.—Possibility of Ore Shortage.—Decreased Output of Blast Furnaces.

Sales of pig iron during the past week have not been large, but the tone of the market shows considerable improvement. The success of the city of New York in disposing of its large bond issue will enable the city to pay for 6,000 tons of steel for Blackwell's Island bridge and for a number of other improvements. In finished lines, deliveries are improving and conditions at the mills are easier.

Lake Ore Shipments

Although August made a new record in shipments of ore from the Lake Superior ranges, notice has been served on consumers of Bessemer ores that they may expect a shortage for the season of possibly 30 per cent. Recent shipments have been, to a large extent, from stock piles, which are now practically exhausted, and the wet weather prevailing on the ranges and the difficulty of obtaining enough laborers are reducing the tonnage mined to such an extent that it seems very improbable that the rate of shipment hoped for earlier in the season can be maintained.

Pig Iron Market

There are indications that some of the leading southern producers are acting in harmony in an effort to maintain the price on a basis of $18.50 Birmingham for the remainder of the year, although sales are being made at $18. Inquiries in the New York district are more numerous, and sellers are figuring on some 20,000 tons. Sales have increased in the Philadelphia district, and in the central west there is a decidedly better feeling. The blowing out of a number of furnaces in the Pittsburg district and in the valleys, the expected shortage of Bessemer ores and the fact that the Steel Corporation is understood to be willing to buy at any time that there is a tonnage available, indicate that the strength of the market for steel making irons will be well maintained. Many furnaces in the valleys are behind on their deliveries.

Finished Material

The deliberations of the representatives of the railroads and manufacturers of steel rails are apparently approaching an amicable conclusion, and more interest is being shown in the rail market, but little new business is reported. The advance announced last week in prices of wire products has been well received and has stimulated the market for fall and winter deliveries. The demand for sheets and plates is good and the delivery shows considerable improvement. The structural material market is in satisfactory condition, and sellers are figuring on a large number of new plants and bridges, especially in the central west.

Coke and Old Material

The coke market is strong. There is still some difficulty in obtaining labor. The blowing out of furnaces in the valleys will undoubtedly decrease the demand for a time. While there has been more buying of old material in Philadelphia and some other centers, the market in general is dull.

Pig Iron Production

Our monthly blast furnace statistics show a decrease in production for August of 36,773 tons as compared with July, and a decrease of 74,560 tons as compared with the record month of May of this year. As a number of furnaces have blown out in the past two or three weeks, a still smaller production may be expected for September.

BEST YEAR

IN HISTORY OF LA BELLE IRON WORKS SHOWN.

Substantial Addition Made to Net Surplus.—Extensive Improvements to Plants.—Annual Report.

The most prosperous period in the company's history, netting a very substantial gain to the surplus account, is shown by the La Belle Iron Works in its report of operations for the year ending June 30, 1907. The income account is shown in the accompanying table on page 417.

President Isaac M. Scott, in summarizing the business for the year, says in part as follows:

Minerals.

Your ore properties were operated throughout the year with satisfactory results both as to output and quality of product.

In order that the position of your Steubenville plant should be still further fortified, your previous large holdings of steam and furnace coal in Brooke county, W. Va., were increased by the purchase of about 2,500 acres of Upper Freeport coal, thus giving you at this point, in one body and easily accessible from the point of consumption, a sufficient acreage to supply your coal requirements for an indefinite period.

Manufacturing Plants.

Throughout the year your manufacturing plants were operated continuously, with the exception of such stoppages as were unavoidable, the principal interruption being caused by the March flood, which compelled a complete suspension of operations at the Steubenville plant of about one week's duration. Fortunately, aside from the loss of profits and the attendant expense of cleaning up, no serious damage from this cause was sustained.

Plant Additions.

Believing a further increase in the company's finishing capacity to be highly desirable, your management, under the direction of the board of directors, contracted for and there is now in course of construction one 72-inch plate mill, two jobbing mills, eight sheet mills and a galvanizing and pickling department, together with the necessary handling and shipping facilities.

To supply these new mills will require monthly between 10,000 and 12,000 tons of slabs and bars, thus

(Continued on page 417.)

THE WEEK IN IRON CENTERS

PITTSBURG.

Improved Tone of Market—Shortage of Bessemer Ores is Feared.

Office of THE IRON TRADE REVIEW,
521 Park Bldg., Sept. 10.

While transactions put through during the past week have not been sufficient in tonnage to affect market conditions one way or the other, the sentiment is decidedly better. The most notable change has been the improvement of inquiry for foundry pig iron. These inquiries, while they have not run larger than carload to 100-ton lots, have been more numerous than during any week of the past month. Prices are easier, and $21.50 valley furnace can easily be done on northern No. 2 for either prompt or forward deliveries. This is a reduction of 50 cents since our last report. There is no change in finished lines, specifications are running light, and aside from structural shapes and wire products, very little new business is being placed. An improvement is noted in the market for hoops and bands and painted roofing sheets, while in iron bars a little new business has been placed, but it is widely scattered. Pig iron producers are now expressing a little anxiety in the direction of their winter Bessemer ore supply, and one of the leading independent producers is authority for the statement that the supply before spring will be from 20 to 30 per cent below requirements, bearing out his assertion by saying that notwithstanding the fact that August ore shipments from the head of the lakes broke all records, this was not indicative of the record pace being maintained. He states that the ore production from underground mines in the Lake Superior region is 50 per cent below what it should be, and that the record for lake shipment was attained by taking ore from stock piles. Notice has been sent to buyers of Bessemer ore that they may expect a shortage of about 30 per cent. During the past week six furnaces in the Pittsburg district and in the valleys went out of blast for relining or other repairs, and it is predicted that the supply of steel making iron during the next six weeks will on this account be reduced from 30,000 to 35,000 tons. These furnaces are No. 4 Shenango, one Andrews & Hitchcock furnace, Alice furnace of the Youngstown Sheet & Tube Co. at Sharpsville, Ella furnace of Pickands-Mather Co. at Middlesex, one Steel Corporation stack and one Republic stack, all producers of Bessemer pig iron. The Andrews & Hitchcock stack will be out only a few days.

Pig Iron.—There is absolutely nothing done in steel making pig iron, the available supply being so limited that one offer of $24 delivered for one carload of spot iron did not secure the material. Bessemer pig iron is firm at $22 valley, and basic $20 to $20.50 valley. Foundry pig iron prices in the face of a little better inquiry have fallen off 50 cents a ton, and we now quote $21.50 to $22 on northern No. 2 for prompt delivery. Forge iron is quoted $20.50 to $21 furnace. No future business is being offered. The fact that six furnaces on Bessemer iron went out of blast during the past week, lessening the supply during the next six or eight weeks about 35,000 tons, together with the prediction of a shortage next winter of Bessemer ores, will hold Bessemer pig iron prety firm for some time to come. As far as can be learned, every furnace in both valleys is behind on shipments. For delivery during the remainder of the year we quote:

Bessemer, Valley	$22.00 to 22.25
Bessemer, Pittsburg	22.90 to 23.15
No. 1 Foundry, Pittsburg	23.15 to 23.40
No. 2 Foundry, Pittsburg	22.40 to 22.65
Gray Forge, Pittsburg	21.40 to 21.65
Basic, Valley	20.50 to 21.00
Basic, Pittsburg	21.40 to 21.90

Ferro-Manganese.—The market on ferro-manganese has shown a still further decline and one of the large consumers in the Pittsburg district has a quotation on a 500-ton lot at less than $56 delivered during the last quarter. On a large tonnage, a large importer quoted $58.60 delivered Pittsburg, was not accepted. For prompt delivery in carload lots, we quote $57 Baltimore for last quarter, and $58 Baltimore on foreign 80 per cent ferro-manganese. The Pittsburg freight is $1.90.

Imported 50 per cent ferro-silicon is quoted $106 Pittsburg, domestic 12 per cent, $36; 11 per cent, $35; 10 per cent, $34. The lower grades of imported ferro-silicon are quoted 50 cents lower. These quotations are applicable to Pittsburg territory. Western and central western prices, where the material is not subject to the competition of foreign grades, are higher, and in the east a little lower.

Plates.—The demand for deliveries on old plate contracts is as great as ever, although very little new business is being placed. Mills are seeking light plate business, but have not been very successful. During the week the Denver & Rio Grande railroad placed a contract with the Pressed Steel Car Co. for 1,000 gondola freight cars, and the Emlenton refinery for 20 tank cars, while the Carnegie Steel Co. placed a small order. Prices are unchanged as follows:

Tank plate, ¼-inch thick, 6¼ to 100 inches, 1.80c to 1.90c f. o. b. mill Pittsburg for prompt shipment, and 1.70c base Pittsburg on future deliveries. Extras are as follows per 100 pounds: Boiler and flange steel plates 0.10c. A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than four inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1.00c. Gages under ¼-inch to and including 3-16-inch plate on thin edges, 0.10c; under 3-16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—New business is still light, but shows some improvement, and specifications continue good. A little improvement in delivery is noted, and promises on blue annealed and galvanized sheets are now 17 to 18 weeks. The demand for roofing sheets has improved materially. Galvanized roofing has not been slow at any time during the summer. Painted roofing sheets have been very quiet, but are now being ordered out in good shape. We quote as follows:

Black steel sheets one pass, cold rolled, Nos. 11-12, 2.20c; Nos. 13-14 2.25c; Nos. 15-16, 2.30c; Nos. 17-21, 2.35c; Nos. 22-24, 2.40c; Nos. 25-26, 2.45c; No. 27, 2.50c; No. 28, 2.60c; No. 29, 2.75c; No. 30, 2.85c; galvanized Nos. 10-11, 2.65c; Nos. 12-14 2.75c; Nos. 15-16, 2.85c; Nos. 17-21, 3.00c; Nos. 22-24, 3.15c; Nos. 25-26, 3.35c; No. 27, 3.55c; No. 28, 3.75c; No. 29, 4.00c; No. 30, 4.25c; blue annealed, No. 10 and heavier, 1.85c; Nos. 11-12, 1.90c; Nos. 13-14, 1.95c; Nos. 15-16, 2.05c. Corrugated roofing, $1.90 per square for No. 28 painted, 2½-inch corrugation, and galvanized, $3.25 per square for No. 28.

Tin Plate.—Buyers still show a dis-

position to wait until the last minute before placing their business even for their fall requirements. Mills are taking on very little new business at this time, and prices are being pretty well maintained. We quote:

Coke tin plate, 100-pound basis, 14 x 20, $3.90 f. o. b. mill, Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—After the spurt of last week, when 60,000 tons of standard sections were placed with local interests for 1908 delivery, the market for the week under review has been quiet and the total sales on standards did not represent more than 2,000 tons. Inside information as to the action of the joint committee representing railroads and rail makers, in its report on new specifications is, that this matter will be definitely adjusted within the next two weeks. The difference between the railroads and rail manufacturers on this proposition is not great, and no difficulty is expected in reaching an adjustment. The market is unchanged, and on the old specifications we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $40; 12-pound, $36 to $37; 16-pound, $35 to $36; 20-pound, $34 to $35; 25 to 45-pound, $33 to $34; angle splice bars for standard sections, $1.65; standard spikes, $2.15 to $2.20 Pittsburg; hand spikes, $2.40 to $2.50 Pittsburg.

Steel.—The steel situation is unchanged and there is a scarcity of small billets, sheet and tin bars. The price on 4 x 4's and larger is nominally $29.50 to $30 Pittsburg, although $30.50 has been paid for a small tonnage purchased through a middleman. The Carnegie Steel Co. has made no further purchases during the week. Bessemer billets 4 x 4 and larger are quoted $29.50 to $30, and open-hearth $31.50 to $32. Sheet bars, which are very hard to obtain, are quoted nominally $31 Pittsburg.

Hoops, Bands and Cotton Ties.—The buying movement on hoops and bands is expected to start during the latter part of the present month. Already some of the smaller interests have placed their contracts at the old prices, from which there will be no change. A heavy movement in cotton ties is expected next month. On hoops and bands the cooperage and brewing interests have in some cases placed orders for requirements after their old contracts have expired, rather than contract for the year and preferring to wait, knowing there will be no change in price. We quote:

Hoops in carload lots, 2c; in less than carload lots, 2.10c; bands, 1.60c, base half extras as per standard steel; cotton ties, 97c per bundle.

Merchant Bars.—Small dealers and manufacturers who have been holding off on account of unfavorable crop and Wall Street reports are now coming in, but the volume of business from these sources is not heavy. There is no improvement in specifications from a tonnage standpoint, although they are much better than sales. Steel bar specifications have not been heavy at any time since the contract period, neither have they been bad, although mills would like to see a larger movement in this direction. The market on shafting is a little firmer than it was last week. The iron bar inquiry has improved, and considerable future business has been booked during the week. We quote:

Common iron bars, 1.70c to 1.75c Pittsburg in carload lots and over; 1.75c to 1.80c in less than carloads; 1.60c base Pittsburg, plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.60c net for future deliveries; 1.85c to 1.95c out of stock; plow and cultivator, 1.60c net; channels, angles, zees, tees, under three inches, 1.70c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 50 per cent off in carloads, and 45 per cent in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. The price of planished and machine straightened tire is 1.80c, base, half tire extras. Iron finished tire up to 1½ inch and over to be sold on regular bar basis of 1.60c base, half extras, steel card.

Structural Material.—The demand for heavy shapes during the past week has been unusually heavy, and the rollings of the Carnegie Steel Co. on these large shapes during the past two weeks have been record breakers. Fabricating concerns are taking on but very little new business, the only local job being the Oliver building, Pittsburg, estimates for which are being received by a Chicago architect. The American Bridge Co. during the week secured a contract for 1,100 tons of structural material for the new Y. M. C. A. building at Detroit. We quote:

Beams and channels, 15-inch and under, 1.70c; over 15 inches, 1.90c; zees, 1.70c; tees, 1.70c; angles from three to six inches inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.80c base.

Wire and Wire Nails.—The advance of $1 a ton or 5 cents per hundred on wire products was well received by the trade, and a large volume of new business has been placed with the mills. Manufacturers of wire products, considering their tonnage, are farther behind on deliveries now than they have been at this season of the year for the past eight years. We quote as follows:

Wire nails, jobbers' carload lots, $2.05; retailers' carload lots, $2.10; less than carloads, $2.15; painted barb wire, $2.20 for jobbers in carloads; retailers in carloads, $2.25; and less than carload, $2.35, with 30c for galvanizing; plain wire, $1.90 for jobbers, and $1.95 by carload.

Merchant Pipe.—Delivery orders against contracts have not been as heavy during the past two weeks as formerly, but with the immense tonnages on the books mills are not worrying over this phase of the question. There is enough tonnage on the books of pipe manufacturers to keep them going five to six months without new business, provided there are no cancellations. Very little new business is being placed, although there are inquiries out for several fair tonnages of small line pipe. Nobody is in shape to make definite delivery promises. Prices are being firmly maintained and we quote the following official discounts to consumers in large lots:

	—Steel— Black.	Galv.
⅛ and ¼ inch	65	49
⅜ inch	67	53
½ inch	69	57
¾ to 6 inches	73	63
7 to 12 inches	70	55
EXTRA STRONG PLAIN ENDS.		
⅛ to ⅜ inch	58	46
½ to 4 inches	65	53
4½ to 8 inches	61	49
DOUBLE EXTRA STRONG PLAIN ENDS.		
½ to 8 inches	54	43

Wrought Pipe.—Mills are far behind on deliveries and some new business is being offered all the time, but manufacturers are doing the reverse of soliciting new business at this time on account of their filled-up condition. We quote the following discounts:

RANDOM LENGTHS WITH THREADS AND COUPLINGS—CARLOAD LOTS.	Black.	Galv.
⅛, ¼ and ⅜ inch	59	43
½ inch	62	51
¾ and 6 inch	67	57
7 and 8 inch	62	46
PLUGGED AND REAMED.		
1 to 4 inch	65	55
EXTRA STRONG PLAIN ENDS.		
⅛, ¼ and ⅜ inch	52	40
½ to 4 inch, inc	59	47
4½ to 8 inch	55	42
DOUBLE EXTRA HEAVY PLAIN ENDS.		
½ to 3 inch, inc	48	37

Boiler Tubes.—Prices are being maintained all along the line and we quote the following discounts:

	Iron.	Steel.
1 to 1½ inch	42	47
1¾ to 2¼ inch	42	59
2½ inch	47	61
2¾ to 5 inch	52	65
6 to 13 inch	42	59

2¼ inches and smaller, over 18 feet, 10 per cent net extra.
2¾ inches and larger, over 22 feet, 10 per cent net extra.

Coke.—The coke market is very firm and has been so during the week under review. Inquiry is light, but on the other hand, no coke is being offered in the market. Spot furnace coke is quoted $2.80 to $2.90 and spot foundry coke $3.25 to $3.40, with little or nothing in the way of contract coke. The supply of foundry coke has been more plentiful during the past week, but this surplus has not been enough to in any way affect the market. The labor situation has improved in spots, but is still unsatisfactory. Representatives of the Steel Corporation have been in the coke region soliciting foreigners for the Lake Superior ore regions. The fact that five furnaces in the Pittsburg district and valleys have gone out of blast for relining or repairs within the past week, and will probably be down from five to eight weeks, will probably have influence toward easing off the coke market.

Old Material.—The inactivity of the scrap market is more prominent each week and, on account of the holidays at the beginning of the week, dealers have transacted no business. There is no inquiry except possibly for rerolling rails. The leading interest for some time past has ignored dealers and bought what it wanted direct from railroad lists or producers. We quote as follows, gross tons, delivered in the Pittsburg district:

Heavy melting scrap, $17.50 to $18; rerolling rails, $18.75 to $19; bundled sheet scrap, $15 to $15.25; iron axles, $29.50 to $30; old iron rails, $22 to $23; No. 1 wrought scrap, $18.50 to $19; old car wheels, $24 to $24.50; low phosphorus scrap, $22.50 to $23; machine shop turnings, $14.25 to $14.75; axle turnings, $15.25 to $15.75; cast borings, $13 to $13.50; No. 1 cast scrap, $19.50 to $20.

The Jones & Laughlin Steel Co. entertained a party of officials and guests at its Soho and south side plants on Sunday of this week. After dinner at the south side plant, the steel company took its guests by special train to the Vesta Coal mines at California, Pa., and afforded an excellent opportunity to inspect the workings.

CHICAGO.

Little Interest in Pig Iron—Much New Construction—Figuring on Cars.

Office of THE IRON TRADE REVIEW,
1362 Monadnock Block, Sept. 11.

The week has been devoid of any special transactions or features of interest. Apathy in pig iron continues and prices are decidedly plastic. Scrap also is without strength and in a declining condition. Billets seem easier and early delivery on any reasonable tonnage can now be obtained. The last important transaction in this market was the purchase a few weeks ago of 7,000 tons of Bessemer billets from a New York interest by the International Harvester Co. for delivery at Auburn, N. Y., during the balance of this year. There is an active demand for structural shapes and sheared plates. The local mills are sold up for this year on both materials and have a considerable tonnage on their books for 1908. There seems no lack of money for construction work, judged by the projects constantly appearing. The aggregate this week is 30,000 tons. Prices are also asked on 6,000 cars by the Harriman lines, and within the past week the Denver & Rio Grande has ordered 1,000 steel ore cars from the Pressed Steel Car Co. Railroads and car builders are pressing mills for deliveries of iron and steel shapes against current contracts. No important rail tonnage has been taken by the local mill in the week under review. Deliveries of light rails are slow, but when the new mill of the Illinois Steel Co. at South Chicago is in operation, which will be within a month, it is hoped to quickly overtake the delinquent tonnage. The commencement of this mill will also relieve the congestion at Milwaukee by allowing the present light rail mill there to operate on small structural and bar sizes. A contract for 5,000 tons of cast iron pipe has been let by the city of Kansas City to the leading interest in this material.

Pig Iron.—Opinion varies as to the condition of the market. In some selling quarters it is considered stronger and more active, and in others quite the reverse view is held. Whatever buying there is, however, is of the carload variety. No interest is shown in requirements for the fourth quarter or for 1908, all purchases being strictly for prompt shipment. There is no change in prices, $18 Birmingham being asked for southern No. 2 for fourth quarter shipment; $17 to $17.50 for the first quarter of 1908, and $19 to $19.50 Birmingham for delivery this month. Northern No. 2 foundry is held firmly at $23.50 Chicago for this year, and from $21 to $21.50 for next year. The melt of iron in this territory is apparently decreasing, as the number of hold-up orders are increasing. Despite this fact, however, one optimistic seller is authority for the statement that he can figure up close to 100,000 tons of iron which will have to be bought for consumption during the balance of this year by western foundrymen. There seems a plentiful supply of low grade irons, as very attractive prices are offered on No. 4, gray forge, etc. One seller is willing to take from $16 to $16.50 for No. 4, according to tonnage and delivery. That the furnaces are also eager for business on desirable grades is evidenced by the "feeler" sent to a large local melter, in which the suggestion was made that on a round tonnage the present minimum price for this year's delivery would be materially shaded. Our quotations for the fourth quarter are as follows:

Lake Superior Charcoal	$27.00 to 27.25
Northern Foundry No. 1	24.00 to 24.50
Northern Foundry No 2	23.50 to 24.00
Northern Foundry No. 3	23.00 to 23.50
Southern Foundry No. 1	22.85 to 23.35
Southern Foundry No. 2	22.35 to 22.85
Southern Foundry No. 3	21.85 to 22.35
Southern Foundry No. 4	21.35 to 21.85
Southern No. 1 Soft	22.85 to 23.35
Southern No. 2 Soft	22.35 to 22.85
Southern Gray Forge	20.85 to 21.35
Southern Mottled	20.35 to 20.85
Southern Silveries, 4 per cent silicon	23.85 to 24.35
Southern Silveries, 5 per cent silicon	24.85 to 25.35
Southern Silveries, 6 per cent silicon	25.85 to 26.35
Jackson Co. Silveries, 6 per cent	30.40
Jackson Co. Silveries, 8 per cent	32.40
Jackson Co. Silveries, 10 per cent	34.40
Malleable Bessemer	23.50 to 24.00

Billets and Rods.—Tonnage in billets and rods is coming in to the capacity of mills, but rolling vacancies on the books of local manufacturers are so infrequent and light that new business is not of interesting volume. Prices are firmly maintained on the basis of $36 to $38 Chicago for forging billets; $29 Pittsburg for rolling billets, $37 Pittsburg for Bessemer wire rods, and $38 Pittsburg for open-hearth rods.

Merchant Bars.—Iron bars maintained their steadiness at 1.60c Pittsburg. While new business for forward consumption is comparatively light, specifications and orders for current shipment are numerous and increasing in tonnage. Local manufacturers are sanguine over the future and look for an active fall and winter. Railroad tonnage particularly is increasing in volume. The buying of steel bars has practically ceased, and specifications are now the guide of conditions in the fields of consumption. These are very heavy and constantly ahead of the mill capacity.

Western mills are a little slow in shipment, due to the heavy demands upon their resources. Hard steel shapes are firm at 1.75c Chicago. Our quotations below are on car load lots, Chicago delivery:

Bar iron, 1.78c; soft steel bars and bands, 1.78c, half extras; soft steel angles, less than 3 x 3, 1.88c; hoops, 2.18c base, full extras; planished or smooth finished tire steel, 1.98c; iron finish, up to 1½ x ½ inch, 1.93c base; iron finish, 1½ x 1½ inch and larger, 1.78c base; channels for solid rubber tire, ¾ to 1 inch, 2.28c, and 1⅛ inch and larger, 2.18c; smooth finished machinery steel, 2.18c; flat sleigh shoe, 1.83c; concave and convex sleigh shoe, 2.08c; cutter shoe, 2.36⅛c; toe calk steel, 2.33c; railway spring, 1.98c; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 60 per cent off the list f. o. b. Pittsburg for car load lots, and 55 per cent off for less than car load lots. On iron and steel bars from local stocks, we quote as follows: Bar iron, 2.25c full extras; soft steel rounds, and square, 3-inch and larger, $2 per 100-lbs. base; flats, 2 inches to 4 inches by ⅛ inch and larger, $2 per 100 pounds base; 4½ inches by 5 inches and 6 inches by 5-16 inch and thicker, $2 per 100 pounds base; all ovals, half rounds, $2 per 100 pounds base; steel bands, $2 half extras; soft steel hoops, $2.50 full extras. Other sizes not mentioned above, $2 per 100 pounds base plus half extras.

Plates.—On universal plates the situation is a little easier, deliveries being possible on this product within four to six weeks. Sheared plates, however, are exceedingly active. Local and eastern mills have full order books for this year, and are extremely averse to adding to their present obligations. A considerable amount of business for 1908 delivery has been closed within the past six weeks, and this is increasing daily. There is a good store trade and prices are firm. We quote as follows:

Plates, ¼ inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.70c Pittsburg base. For extras see Pittsburg report. Freight rate to Chicago, 18c per 100 pounds for carload lots, and 21c for less than carload lots. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼ inch and heavier up to 72 inches wide, 2.20c; 3-16 inch up to and including 60 inches wide, 2.30c; 3-16 inch, 72 inches wide, 2.55c; No. 8 up to 60 inches wide, 2.50c. Flange steel, 25c extra; heads, 25c extra.

Sheets.—The demand for black and galvanized sheets continues very satisfactory. On 16 gage and heavier, galvanized and annealed, local mills are sold as far ahead as November. Blue annealed sizes are firm in this market, local mills having no trouble securing as high as 2.05c for No. 10. We quote as follows:

Black sheets, Nos. 8, 9, and 10, 1.90c Pittsburg; No. 28, 2.60c Pittsburg, Galvanized sheets, No. 28, 3.75c Pittsburg. Freight to Chicago, 18c per 100 pounds for car load lots, and 21c for less than car load lots. Jobbers' prices on car load lots and less from store are as follows:

No. 10, 2.50c to 2.55c; No. 12, 2.55c to 2.60c; No. 14, 2.60c to 2.65c; No. 16, 2.70c to 2.80c; Nos. 18-20, 2.80c to 2.90c; Nos. 22-24, 2.85c to 2.95c; No. 26, 2.90c to 3c; No. 27, 2.95c to 3.05c; No. 28, 3.05c to 3.15c; No. 30, 3.35c to 3.45c. Galvanized sheets, Nos. 10 to 20, 3.50c to 3.55c; Nos. 22 and 24, 3.65c to 3.75c; No. 26, 3.85c to 3.90c; No. 27, 4.05c to 4.15c; No. 28, 4.25c to 4.35c; No. 30, 5.40c to 5.45c.

Structural Steel.—There is no lack of structural orders. The outlook for winter and the first quarter of 1908 is very bright. Fabricators are figuring on a large tonnage, represented in jobs pending, and show no hesitation in placing orders with mills for a part of their 1908 requirements. Already a round tonnage for new year delivery is on the books of the Illinois Steel Co. The capacity of this mill for the balance of 1907 is practically taken. The American Bridge Co. reports only two important western contracts for the week under review. These include two buildings for the St. Joe Lead Co., each involving 400 tons of steel, one to be erected at Bonne Terre, Mo., and the other at Doe Run, Mo. The other contract is for part of the train shed to be erected in conjunction with the new depot at Little Rock, Ark., for the Iron Mountain R. R., and also amounts to 400 tons. Hansell, Elcock & Co., of this city, have been awarded the contract for the new building to be erected for the Steele Wedeles Co., wholesale grocer, this city. The structural requirements will be between 800 and 1,000 tons. Among the projects on which figures are being taken or plans being made are the following: Office building, Houston, Tex., 2,000 tons; addition to the plant of Adams & Westlake, Chicago, 400 to 600 tons; four-story addition, 65 x 300, to the Hawthorne plant of the Western Electric Co.; Steger building, Chicago, 1,700 tons; Seventh Regiment Armory, Chicago, 500 tons; University Club, Chicago, 2,000 tons; hotel, Fort Smith, Ark., 500 tons; railroad bridge across St. Louis river, Duluth, 1,500 tons; three bridges to span the Mississippi river at St. Louis, Mo., 28,000 tons. One of these bridges is to be built by the city authorities. It will cost, completed, $3,000,000, and will consume 18,000 tons of structural shapes. Ralph Modjeski, civil engineer, Chicago, is drawing the plans for the other two bridges. One is for the McKinley Traction System of Illinois and will take 5,000 tons of steel; the other bridge is also for a traction enterprise. Bids for the new theater to be erected in downtown Chicago are not yet out. Land is being purchased for same however. Prices are firm as follows:

Beams and channels, 3 to 15 inches, inclusive, 1.70c Pittsburg. For extras see Pittsburg report. Freight rate from Pittsburg to Chicago, 18c per 100 pounds for carload lots, and 21c per 100 pounds for less than carload lots. Quotations from store are as follows:

All angles, three inches and larger, including six inches, $2.05 per 100 pounds; angles, over six inches, $2.10 per 100 pounds base; beams, 3 to 15 inches inclusive, $2.05 per 100 pounds base; channels, three inches and larger, $2.05 per 100 pounds base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—New tonnage for standard sections was not of important volume last week. Neither has there been much demand for light rails since the first of the month, although the local mill has its capacity taken for at least the next four weeks. Demand for spikes and track bolts are easier and prices on same are somewhat lower. We quote as follows:

Bessemer rails, $28 to $30; less than 500-ton lots, $32; open-hearth rails, $29; light rails, Bessemer, 30 to 45-pound sections, $34; 25-pound, $35; 20-pound, $36; 16-pound, $37; 12-pound, $38, and lighter sections down to 8-pound, $44.50, all f. o. b. mill. Track supplies vary in price according to quantity and delivery. On orders accompanying rail contracts for future delivery, we quote, f. o. b. Joliet: Angle bars, 1.65c; spikes, 2.10c to 2.15c; bolts with square nuts, 2.60c; with hexagon nuts, 2.75c. For carload lots or less, for prompt shipment, the following prices are asked: Angle bars, 2.25c to 2.75c; spikes, 2.40c to 2.50c; bolts with square nuts, 2.85c; with hexagon nuts, 3c.

Cast Iron Pipe.—The 5,000-ton contract of the city of Kansas City, Mo., was awarded to the United States

Cast Iron Pipe & Foundry Co. It calls for 2,700 tons of 4-inch to 16-inch, and 2,300 of 24-inch to 48-inch. The Columbus, Ohio, project, involving 2,500 tons, will be readvertised for the third time. Small orders have been light since the first of the month. We continue to quote 4-inch water pipe, $38; 6 to 12-inch, $37, larger sizes, $36; gas pipe, $1.00 a ton higher.

Merchant Pipe and Boiler Tubes.—The pressure for boiler tubes is becoming insistent. Deliveries have been very slow for some months and local stocks are irregular and low. Jobbers are hard pressed to meet their orders and are demanding heavier and more frequent shipments from mills. Merchant pipe is somewhat improved. On the larger sizes of lap-welded, quick shipment can be given, especially if the specification is for a carload or more of one size. Butt-welded pipe is slow in delivery, manufacturers being crowded with tonnage for this material.

We quote mill discounts, Chicago delivery, carload lots, as follows: On steel pipe, jobbers are allowed a concession of one point and five per cent additional from the schedule in force:

MERCHANT PIPE.

	—Steel— Black.	Galv.
¾ to 6 inches, inclusive.....	71.2	61.2

BOILER TUBES.

	Steel.	Iron.
2¾ to 5 inches, inclusive....	62.2	49.2

Mill quotations on iron pipe are from four to five points higher than above. A concession of one point from the following quotations is allowed by Chicago jobbers on carload orders for shipment from local warehouse stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.

	Black.	Galv.
⅛ to ¼ inch.....	60	44
⅜ inch	62	48
½ inch	64	57
¾ to 6 inches.....	68	58
7 to 12 inches.....	64	49

Minimum prices for wrought iron pipe, carload lots or greater, from Chicago stocks, are as follows: ⅛ inch to ¼ inch, 55; ⅜ inch, 57; ½ inch, 59; ¾ inch to 6 inches, 64; 7 inches to 12 inches, 59. Boiler tubes from store are unchanged at 60 off for steel, 47½ for iron, and 42½ for seamless, base sizes, 2¾ inches to 5 inches.

Wire Products.—No diminution in demand is noted for wire materials. The $1 advance of a week ago has strengthened the market and stimulated buying for fall and winter delivery. Prices to jobbers, Chicago delivery, are firm, as follows:

Wire nails, $2.34; painted barb wire, $2.38; galvanized barb wire, $2.68; smooth annealed wire, $2.08; smooth galvanized wire, $2.38; polished staples, $2.33; galvanized staples, $2.63. Carload lots to retailers, five cents higher; less than carload lots, 15 cents higher.

Coke.—So far as prices are concerned, there is no change in the coke market. Connellsville 72-hour brands for forward delivery are offered at $3.25 ovens, upwards, and furnace coke at $2.75 to $2.85, ovens, according to date of shipment. There is a brisk demand, and the trade outlook is good.

Old Material.—It has been an exceedingly dull week, with little trading and few price changes. The drop in prices as a result of the withdrawal of the support of dealers short on their contracts has not been so severe as was originally expected, and to that extent the market shows an improvement. This may be lost, however, in the absorption of the large tonnage of railroad material now awaiting bids. These lists aggregate 20,000 tons, the largest being from the Baltimore & Ohio for 8,500 tons. In this are nearly 3,500 tons of rerolling rails. The other lists include 350 tons from the Wisconsin Central railway; 2,500 tons from the Santa Fe; 1,500 tons from the Southern railway; 1,200 tons Missouri Pacific; 1,200 tons of rerollers and 1,300 tons miscellaneous scrap from the Chicago & North Western, and others. The decline of 50 cents a ton in cast scrap was caused by the sale of 1,000 tons at $16.50 to a local dealer; railroad malleable and railroad wrought are also down 25 cents a ton each. We have revised our prices, and quote as follows, gross tons being given in the first paragraph:

Old Car Wheels	$24.50 to 25.00
Old Iron Rails	20.00 to 20.50
Rerolling rails (3 ft. and over)	16.75 to 17.00
Old Steel Rails (3 ft. and under)	17.00 to 17.50
Light Section Relayers, 45 lbs. and under, subject to inspection	30.00 to 32.00
Relaying Rails, subject to inspection	28.00 to 30.00
Frogs, Switches and Guards	15.50 to 16.00
Heavy Melting Steel	15.00 to 15.50

We quote net tons as follows:

No. 1 R. R. Wrought	$14.00 to 14.50
No. 2 R. R. Wrought	13.25 to 13.75
Knuckles, Couplers and Springs	14.50 to 15.00
Shafting	17.00 to 17.50
Iron Car Axles	23.00 to 23.50
Steel Car Axles	20.50 to 21.00
Dealers' Forge No. 1	11.75 to 12.00
Pipes and Flues	11.00 to 11.50
No. 1 Cast, 150 lbs. and less	16.50 to 17.00
No. 1 Mill	10.00 to 10.50
Mixed Busheling (Nos. 1 and 2)	10.50 to 11.00
Country sheet	8.00 to 8.50
No. 1 Boiler Cut	10.00 to 10.50
Boiler Punchings	14.00 to 14.50
Cast Borings	8.50 to 9.00
Mixed Borings, etc	8.50 to 9.00
Machine Shop Turnings	10.50 to 11.00
Railroad Malleable	15.50 to 16.00
Agricultural Malleable	14.25 to 14.75
Stove Plate and Light Cast Scrap	14.00 to 14.50
Old Iron Splice Bars	16.50 to 17.00

The Colbrook furnace No. 1, of the Lackawanna Steel Co., was out of blast 13 days during August.

CLEVELAND.

Hope for 40,000,000 Tons' Ore Shipment Revived—New Business Light.

Office of THE IRON TRADE REVIEW,
Browning Bldg. Sept. 10.

Iron Ore.—The unexpectedly good record of ore tonnage moved in August has revived the belief in some quarters that the season's shipment will reach 40,000,000 tons. Some of the most sanguine ones are not stopping in their prediction at less than 41,000,000 tons. The season's total to date of 24,341,522 tons, or a total gain of 1,620,457 over 1906 leaves a movement of practically 16,000,000 tons to come in September, October, November and December, if the coveted mark is to be reached. If the present percentage of gain is to be maintained, the feat will be accomplished. The weather's influence from now on will probably largely determine the success of this effort. The month of September has been begun with some unfavorable circumstances, particularly the encountering of heavy storms in the mining regions, which have considerably interfered with operations. The unsettled state of the pig iron market is forbidding any interest in next year's ore, but there are a few inquiries constantly in view for tonnages to fill in requirements. Generally, these are difficult to obtain. The complete figures of shipments by ports during August are as follows:

Port	Aug. 1906	Percent of total	Aug. 1907	Percent of total
Escanaba	871,106	15.38	918,286	13.48
Marquette	403,328	7.12	574,659	8.45
Ashland	571,698	10.09	607,653	8.93
Superior	906,960	16.01	1,334,790	19.61
Duluth	1,601,941	28.27	2,051,280	30.14
Two Harbors	1,310,779	23.13	1,320,143	19.39
	5,665,815	100.00	6,806,811	100.00
Port.	To Sept. 1, 1906.	Per cent of total.	To Sept. 1, 1907.	Per cent of total.
Escanaba	3,436,611	15.12	3,731,165	15.33
Marquette	1,708,937	7.52	1,924,464	7.91
Ashland	2,251,057	9.91	2,314,760	9.51
Superior	3,578,496	15.75	4,416,454	18.14
Duluth	6,584,272	28.98	7,202,645	29.59
Two Harbors	5,161,722	22.72	4,752,064	19.52
	22,721,095	100.00	24,341,552	100.00

Pig Iron.—Outside of a fair inquiry for spot iron, the situation is one of extreme dullness. Sales have been few, as local furnaces are very nearly sold up for the balance of the year. A few small lots of spot No. 2 foundry have been disposed of at $22.50 furnace and a small transaction of No. 3 foundry at a price equivalent to $22 furnace is reported. In one instance, an offer to sell No. 2 foundry spot at $22 furnace was made, but this failed to develop a sale, the prospective purchaser claiming to have closed at an even less price. The feeling tactics as to 1908 iron, which it was reported last

week, certain melters were employing appear to have subsided, and no interest whatever has been displayed this week in next year's iron. Generally, iron on contract is being taken readily, although there are some instances of shipments being withheld. In steel making iron, anticipations of shipments are being urged from the furnaces. We quote f. o. b., Cleveland, for the remainder of the year as follows:

Bessemer	$22.90
No. 1 Foundry	23.00
No. 2 Foundry	22.50
No. 3 Foundry	22.00
No. 2 Southern	22.85
Gray Forge	21.50

Coke.—Coke is more than holding its own at present, and the market continues strong. The demand is good, but sales are few, as many producers have sold up their output extending into next year. We quote furnace coke for the balance of the year at $3.00 and foundry coke from $3.25 to $3.50.

Finished Material.—Improvement in deliveries of various products is quite generally reported, due to a rather light volume of new business being closed. Specifications on contracts, as a rule, are also lighter than several weeks ago. In sheets, the principal producer is promising shipments with less delay, furnishing blue annealed sheets, in from 8 to 12 weeks, American Bessemer 16-gage and lighter in six weeks and galvanized from 16 to 18 weeks, as compared to 25 and 26 weeks a short time past. Some mills are also making better shipments on structural and are now about six weeks behind in their orders. Warehouse structural business, however, is excellent. A smaller volume of premium business is being done in plates for prompt shipment, and deliveries now range from four to six weeks on universal to three to four months on sheared plates. An inquiry for 1,000 tons of plates is pending in this market. Bar iron shows no improvement, and although some good specifications have been received in the current week, the mills are becoming anxious for new business. Agricultural implement interests are drawing heavily upon their bar contracts for winter business. Complaints are frequent on the slowness of collections, and this has become a problem of great importance to some sellers. We note the sale of 500 tons of standard rails for frog and switch purposes.

Old Material.—Transactions in old material remain at a minimum and the mills and foundries continue to confine their buying to the hand-to-mouth variety. The market is entirely devoid of any considerable activity and is in a state of practical drifting, which is expected to bring price changes soon, probably declines. Railroad sales of the week have been closed at low prices, and new lists in the field are unusually large, aggregating, approximately, 50,000 tons. Among the roads offering material are the Southern, New York Central, B. & O. and Pennsylvania lines east. We quote prices unchanged f. o. b. Cleveland, gross tons as follows:

Old iron rails	$21.50 to 22.00
Old steel rails (re-rolling)	17.50 to 18.50
Old steel rails (under 6 feet)	17.50 to 18.50
Old car wheels	22.50 to 23.50
Steel boiler plate	14.00 to 14.50
Steel axles	21.00 to 22.00
Malleable iron (railroad)	18.00 to 18.50
Malleable iron (agricultural)	15.00 to 16.00
Heavy steel	16.00 to 16.50
Country mixed steel	14.00 to 14.50
Low Phosphorus	20.00 to 21.00

We quote net tons as follows:

No. 1 R. R. wrought	$16.00 to 16.50
No. 1 busheling	14.00 to 14.50
No. 1 machine cast	17.50 to 18.50
Iron axles	23.00 to 24.00
Axle turnings	12.50 to 13.00
Machine shop turnings	11.00 to 11.50
Grate bars	14.00 to 14.50
Pipes and flues	12.50 to 13.00
Tank iron	12.00 to 12.50
Hoop and band iron	8.00 to 8.50
Sheet iron	7.00 to 8 00
Wrought drillings	11.00 to 11.50
Stove plate	14.00 to 14.50
Cast borings	10.50 to 11.00

CINCINNATI.

Rumored that Leading Producers of Pig Iron Have Adopted a Uniform Price.

Office of THE IRON TRADE REVIEW,
124 Government Place, Sept. 10.

Pig Iron.—Another week of quietude in the pig iron market has passed. The situation appears to be unchanged. Hardly enough inquiry is to be found to bring out minimum prices for large lots and the little business going is confined to small orders to fill out contracts or by reason of disappointments in delivery of iron. One inquiry for 500 tons of foundry iron for delivery in Detroit and another for some soft iron for local use is about all of the pending business to be noted. Prompt shipment prices are about the same as a week ago, with this exception: It is believed that, while small lots are to be picked up at $18 Birmingham, an inquiry for any fair-sized tonnage would develop the fact that it would not be obtainable at less than $18.50 Birmingham. The few lots of high grade iron that furnaces have unsold on contracts are mostly small tonnages and are naturally offered freely on a market like this, but there is a limited amount of high grade iron still free for the balance of this year. We quote for prompt delivery, delivered Cincinnati, as follows:

Southern Foundry No. 1	$21.75 to 22.25
Southern Foundry No. 2	21.25 to 21.75
Southern Foundry No. 3	20.25 to 20.75
Southern Foundry No. 4	19.25 to 19.75
Southern No. 1 Soft	21.75 to 22.25
Southern No. 2 Soft	21.25 to 21.75
Southern Gray Forge	19.00 to 19.25
Northern No. 1 foundry	22.70 to 23.20
Northern No. 2 foundry	22.20 to 22.70
Northern No. 3 foundry	21.20 to 21.70

Forward business continues nil. Prices are merely nominal. Quotations representing prompt delivery are regarded as reflecting what could be done on deliveries extending over the balance of this year. In this connection it is rumored that about six producers in the south have adopted a uniform price for the high grades with a view to maintaining $18.50 Birmingham for No. 2 foundry, No. 2 soft and No. 1 of the same descriptions, for the balance of the year. This, it is said, is being done in order to have the contract iron delivered on practically the same basis as the spot, as the iron now being delivered was mostly bought at $18.50 Birmingham. The lower grades are under no restrictions, and as they are said to be accumulating, each furnace is acting independently in regard to prices. We quote for last quarter, delivered Cincinnati, as follows:

Southern Foundry No. 1	21.75 to 22.25
Southern Foundry No. 2	21.25 to 21.75
Southern Foundry No. 3	20.25 to 20.75
Southern Foundry No. 4	19.25 to 19.75
Southern Foundry No. 1 Soft	21.75 to 22.25
Southern Foundry No. 1 Soft	21.25 to 21.75
Gray Forge	19.00 to 19.50
Northern Foundry No. 1	22.70 to 23.20
Northern Foundry No. 2	22.20 to 22.70
Northern Foundry No. 3	21.20 to 21.70

Finished Material.—There is not much doing in large business to be placed with the mills, but small orders from stock are fairly good and retail prices are well maintained. Small orders are filled here at the following prices:

Angles, 3 x 3 and over, 2.15c to 2.25c; beams and channels, 15 inches and under, 2.15c; small angles and architectural channels, 2.10c base; plates ¼ inch and heavier, 2.10c; 3-16 inch, 2.20c; No. 8, 2.20c; sheets (blue annealed) No. 10, 2.30c; No. 12, 2.35c; No. 14, 2.40c; No. 16, 2.50c; box annealed sheets, No. 18 and 20, 2.65c; Nos. 22 and 24, 2.75c; Nos. 25 and 26, 2.80c; No. 27, 2.85c; and No. 28, 2.95c. Iron and steel bars, $2 base; boiler tubes, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3.15c base; cold rolled shafting, 45 per cent off list; steel tire, 2.10c base.

Coke.—The market is firmer in tone and some quotations are higher. Ovens are showing more inclination to refuse additional tonnage. The only low prices now heard are the result of some demurrage coke coming out by reason of a furnace shut

down or some unusual condition. Prices in the leading coke producing districts are as follows:

Old Material.—The market rules weak and some grades are lower. We quote delivered Cincinnati as follows:

Wise County, Va., Furnace Coke, prompt shipment	$2.50 to 2.65 per ton
Wise County, Va., Foundry Coke	3.00 to 3.25 per ton
Pocahontas Furnace Coke, prompt shipment	2.60 to 2.75 per ton
Pocahontas Foundry Coke	3.00 to 3.25 per ton
Connellsville Furnace Coke, prompt shipment	2.85 to 3.00 per ton
Connellsville Foundry Coke	3.25 to 3.50 per ton
New River Foundry Coke, prompt shipment	3.35 to 3.60 per ton
New River Furnace Coke, contract	2.85 to 3.00 per ton
Old No. 1 R. R. wrought net tons	$15.50 to 16.00
Cast machine and fdy, net tons	18.00 to 18.50
Old iron rails, gross tons	22.00 to 23.00
Old steel rails (re-rolling) gross tons	18.00 to 19.00
Old short lengths, gross tons	19.00 to 20.00
Old iron axles, net tons	25.00 to 26.00
Heavy melting scrap, gross tons	17.50 to 18.50
Stove plate, net tons	13.50 to 14.50
Wrought turnings, net tons	11.50 to 12.50
Cast borings, net tons	9.75 to 10.75
Car wheels, gross tons	23.00 to 24.00

PHILADELPHIA.

Increase of Pig Iron Sales Causes More Hopeful Feeling.

Sept. 10.

Pig Iron.—A marked increase in sales has brought about a more hopeful feeling among producers, and much greater confidence in the future is expressed than a few weeks ago. Last week one large interest sold more pig iron than it did during the entire month of July. The business is practically all spot or last quarter, and most of the orders are small in amount, showing that consumers are still following their hand-to-mouth policy, but the volume is encouraging and has caused a much more cheerful feeling in the trade. It is known that a large number of consumers have practically no stocks on hand, and that if they are to continue in business they cannot delay purchases beyond the coming month. No very great improvement in prices is looked for, but it is believed that if they can be held at about present figures they will afford a satisfactory basis on which producer and consumer can meet. Several old furnaces in eastern territory are just on the point of blowing out if there is any further decline in prices, and some have had to stop for repairs, so that production is likely to receive a check if there is not a marked improvement in the general situation soon. This may be further accentuated if the companies producing Lake Superior ore cut down their supplies to furnaces from 15 to 30 per cent, as they have given notice that they may have to do on account of the labor and other difficulties at the mines. Prices, which are now believed to be about at rock bottom figures, may be quoted as follows:

No. 1X Foundry	$22.00 to 22.50
No. 2X Foundry	21.00 to 21.75
No. 2 Plain	20.50 to 21.00
Standard Gray Forge	18.50 to 19.25
Basic	19.25 to 20.00
Low Phosphorus	27.00 to 27.50

New Material.—Structural material continues the strongest line among finished products, the demand for which is not as great as the mills would like to see. These are still busy on old orders, but new business is rather light. There is a more hopeful feeling, however, and it is expected that with the improvement in the money situation the railroads will come forward soon with large orders for rails, street cars, bridge and other material. Prices remain unchanged as follows: Beams, channels and angles, according to specifications, 1.85c to 1.90c; refined iron bars, 1.80c to 1.90c; steel bars, 1.75c to 1.85c; plates, 1.85c to 1.90c.

Old Material.—There has been a little more buying, but it has been of the hand-to-mouth order, and covered no requirements for any distance ahead. The market has been very quiet, and the price variations have been small. The embargo at Coatesville has been lifted so far as one of the largest consumers of scrap is concerned. Prices may be quoted as follows:

Old steel rails	17.50 to 18.00
No. 1 steel scrap	16.00 to 16.50
Old steel axles	20.00 to 21.00
Old iron axles	26.00 to 27.00
Old iron rails	20.00 to 21.00
Old car wheels	23.00 to 23.50
Choice scrap R. R. No. 1 wrought	17.75 to 18.25
No.1 yard scrap	16.25 to 16.75
Machinery scrap	19.00 to 20.00
Low phosphorus scrap	21.50 to 22.00
Wrought iron pipe	14.25 to 14.75
No. 1 forge fire scrap	14.00 to 14.50
No. 2 forge fire scrap, ordinary	10.00 to 10.50
Wrought turnings	14.00 to 14.50
Axle turnings, heavy	14.50 to 15.00
Cast borings	12.75 to 13.25
Stove plates	14.00 to 14.50

NEW YORK.

Increased Inquiry for Pig Iron—More Activity in Rails.

Office of THE IRON TRADE REVIEW,
Room 1005, 90 West St., Sept 10.

Pig Iron.—The local situation is still in an unsettled state, but a decided improvement in inquiry is noted. In the New England field one large stove and heating concern has asked for tenders on about 6,000 tons of foundry iron for delivery running through the rest of the year. In the New York district, there is one inquiry for 1,000 tons of malleable and another for 1,000 tons of 2X foundry, which will be placed shortly. Inquiries for lots of 500 to 1,000 tons, however, are quite numerous and it is probable that selling concerns are figuring on an aggregate of 20,000 tons in this territory, although a part of this inquiry is admittedly put out to test the market and may not result in immediate business. The level of the market is about the same as a week ago. Feeling as to the future is divided, with a considerable number of well informed people holding the opinion that the next few weeks will develop a stronger tone. There have been some very fair sales of basic made recently on the low quotations established by a few concerns eager for business. From abroad comes the report that stocks of No. 3 Middlesbrough in Connal's yards are down to below 180,000 tons; no British iron, however, is now coming into this country. Current quotations are still more or less nominal, inasmuch as the range of prices is extremely wide. For instance, several furnaces are holding firmly to $21.00, furnace, for 2X foundry and some sales are being made at this figure, though a large tonnage will secure a much lower figure. We quote tidewater prices as folows:

Northern Foundry No. 1	$21.00 to 22.00
No. 2X Foundry	20.00 to 21.00
No. 2 Plain	19.00 to 20.00
No. 2 Southern Foundry	22.00 to 23.00
Basic	19.50 to 20.00

Ferro-Manganese.—The market is quiet, with prices unchanged on the level of $59.00 to $60.00, seaboard, according to delivery.

Finished Materials.—The Maryland Steel Co. was the lowest bidder for furnishing the 6,000 tons of fabricated steel for the Blackwell's Island bridge approach. The actual award of both this contract and that for furnishing the last batch of steel for the Chelsea pier sheds, also taken by the Maryland company, has not been made, owing to the difficulties of the city in marketing its bonds. This dilemma of the city, in fact, has been responsible for much of the recent suffering of building and contracting interests locally because of the tightness of money. Some little railway bridge work is developing. The St. Paul has placed orders for 700 tons with the American Bridge Co. and is figuring on some 2,500 tons additional. The Union Railway at Pittsburg has placed a 200-ton order and the New Haven is in the market for two bridges requiring about 250 tons. With these exceptions, nothing has developed further than has previously been noted.

Finished Material.—Informal conferences between rail manufacturers and railroads continue, in line with the general attempt of steel mills to produce a rail entirely meeting the increased requirements. The probable

result will be some radical changes in the cropping of the ingot and until a definite decision is announced, little tonnage is likely to be placed. From the present outlook, little actual construction work on the Duluth plant of the Minnesota Steel Co. will be done before spring. Present activities are entirely preliminary in character, being confined to topographical surveys, preliminary plans, the building of spur tracks, etc. The early setting in and severity of the Duluth winter season will render construction work during these months impossible.

There is more activity in the rail market, following the conference last week of railway interests and rail manufacturers. In addition to sales announced a week ago, 12,000 tons for the allied Hocking Valley lines and 10,000 tons for the Norfolk & Western, which could not be published because of telegraphic delays, there is a considerable volume of business practically closed, but not yet ready for announcement. Press reports from Pittsburg to the effect that the Pennsylvania may take its rail tonnage from the Corporation and give it to the Tennessee Coal, Iron & Railway Co. are manifestly in error, inasmuch as the last named company had practically all of its 1908 tonnage disposed of months ago.

In other finished lines, the situation is quiet. Occasional sales of bar iron are reported on the basis of 1.60c, Pitsburg. Plates are in lessened demand and premium business has practically all disappeared. We quote as follows: Angles, 3 to 6 inches x ¼ inch and heavier, 1.86c; beams, 3 to 15 inches, 1.86c; tees, 3 x ¼ and heavier, 1.91c; plates, carloads, tank, 1.96c; marine boiler, 2.26c; bar iron, 1.76c; soft steel bars, 1.76c; sheets, No. 28, black, 2.60c.

Old Material.—About the only firm feature of the current market is old car wheels, this being due, of course, to the inability of car wheel manufacturers to meet the demand occasioned by the heavy building of new cars. In other lines, the sagging tendency continues with the volume of business very limited. Collections are a troublesome feature and accounts are being carefully watched. Railway lists for the month are of moderate size. We quote gross tons, New York delivery, as folows:

Old iron rails	$24.50 to 25.00
Old steel rails, rerolling	18.00 to 18.50
Relaying rails	27.00 to 27.50
Old car wheels	23.50 to 24.00
Old iron car axles	26.00 to 26.50
Old steel car axles	19.00 to 19.50
Heavy melting steel	14.50 to 15 00
No. 1 railroad wrought	17.00 to 17.50
Iron track scrap	16.00 to 16.50
Wrought pipe	11.75 to 12.25
Cast borings	10.00 to 10.50
Wrought turnings	11.50 to 12.00
Heavy cast scrap	17.00 to 17.50
Railroad malleable	16.50 to 17.00
Agricultural malleable	15.00 to 15.50
Stove plate	13 50 to 14.00
Grate bars	13.00 to 13.50

BUFFALO.

Little Interest in the Market, but Prices Show Very Little Change.

Sept. 9.

Pig Iron.—The week opens with little interest manifested in the market, although several small inquiries are reported, but dealers regard these as more or less "feelers." Even with the absence of business, there is little shading of prices, and nearly all dealers are quoting on an equal basis. Prices are on about the same level as reported in the last scale.

There is a feeling that the long continued deadlock in the markets is soon to be broken, although those buyers who are testing the market do not appear to be making much effort to cover future requirements. Still, it is confidently anticipated that before the close of the current month there will be considerable activity displayed by all interests.

It is reported that in some instances the small business in progress is causing some of the smaller furnaces to grow tired, and that they are shading prices rather than carry stocks until the buying movement sets in in earnest. Dealers say there is no expectation of any large business before the end of September, but in the meantime there will be considerable hustling for small lots.

Owing to the report that normal conditions have not been restored on the Mesabi range, there is a general belief locally that shortage of lake ores may in the winter and spring divert pig iron tonnage to the southern producers.

The ending of the vacation period is, however, creating a little more life in the market and dealers are preparing to receive numerous inquiries before the month expires.

For fourth delivery, we quote the following prices:

No. 1X Foundry	$22.75 to 23.00
No. 2X Foundry	22.00 to 22.50
No. 2 Plain	21.50 to 22.00
No. 3 Foundry	21.75 to 22.00
Malleable Bessemer	22.00 to 22.50
Gray Forge	21.00 to 21.50
Charcoal	27.00 to 27.50

The Lowell Scale Works, Lowell, Mass., has arranged to locate in Brattleboro, Vt., utilizing the Williams factory. The company has been in the scale business for 16 years.

ST. LOUIS.

Sales of Pig Iron Are for Prompt Shipment—No Price Changes.

Sept. 9.

Pig Iron.—The largest order placed last week was for 500 tons for quick shipment to an Illinois melter and was placed at $18.50, Birmingham basis, for No. 2. It was rumored that one furnace in the Birmingham district quoted a price of $18 for No. 2, covering a small tonnage for delivery over the remainder of the year, but this price has been withdrawn on account of the furnace making it having sold its estimated production. The prevailing price for shipment over the remainder of the present year is $18.50, Birmingham basis. No large orders are pending, a majority of buyers ordering only to cover their immediate needs. Larger deals are looked for before the close of the present month. No changes are reported in prices for first quarter and first half iron, furnaces still quoting $18.50 for No. 2, Birmingham basis. Our quotations, f. o. b. Birmingham, to which $3.75 freight is to be added, follow:

No. 1 Southern	$19.50 to 20.50
No. 2 Southern	19.00 to 19.50
No. 3 Southern	18.50 to 19.00
No. 4 Southern	18.00 to 18.50

Coke.—The coke market is very firm and with a car shortage in sight, which seems to be almost inevitable, higher prices are expected to rule in the immediate future. Orders for coke are coming in freely for immediate and future shipment. There is an inquiry out for from 1,200 to 1,500 tons smelter coke for western shipment, but the deal has not been closed. Our quotations are for 72-hour Connellsville coke, f. o. b., ovens, $3.40 to $3.60; and for furnace coke, $2.75 to $3. The freight to East St. Louis is $2.80, and St. Louis, $2.90.

Old Material.—The conditions of the scrap iron market have undergone no material change since last report. Our quotations follow:

	GROSS TONS
Second-hand Relaying Rails, according to time of delivery	$29.00
Steel rails (less than 3 feet)	15.00
Car wheels	21.00
Re-rolling steel rails	16.00
Heavy melting steel	15.00
Country steel mixed	12.00
Iron rails	22.00
	NET TONS
No. 1 R. R. wrought	$15.00
No. 2 R. R. wrought	14.00
Iron splice bars and fish plates	16.00
Iron car axles	22.00
Steel car axles	19.00
Iron shaftings (3 to 6 inches)	18.00
Country wrought	12.00
Locomotive tires, smooth inside	15.00
Pipes and flues	12.00
Heavy machinery	15.00
R. R. cast (less than 300 pounds)	14.50
No. 1 Busheling	13.00
No. 2 Busheling	12.00
Boiler sheet and rings	12.00
R. R. cast borings (free of inferior quality)	10.00
R. R. wrought turnings	13.50

Machine shop turnings (free from brass)	10.00
Railroad malleable	15.00
Agricultural malleable	14.00
Cast stove plate	11.00

Finished Material.—Standard rails are only in fair demand, although many projects now on the market seem destined to materialize. Light rails are in good demand, and customers are pressing for delivery. Light spikes are scarce, and, practically all jobbers' stocks in this line are depleted.

Structural material has awakened, and there is a good demand, especially for heavy sections. Bars are in very good demand, coupled with numerous complaints about late delivery.

The Union Brewery Co. is preparing to place a contract for from 300 to 400 tons of steel to be used in enlarging its stockhouse at Michigan and Gravois avenues.

BRITISH IRON MARKET.

Reports from America Have Little Effect Owing to German Demand.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Aug. 31.

The position of pig iron appears to have improved during the past week. There has been some little fluctuation in prices, the final result of which is that No. 3 Cleveland pig iron is quoted at 57s 3d ($14.20), compared with 57s 9d ($14.14) a week ago. Prices generally seem to be a shade easier, but there is now decidedly more buying, and the autumn revival has manifestly commenced. August is always a quiet period, yet the shipments totaled 121,602 tons, as compared with 129,268 tons for the previous month. It is surprising how little the depressing reports from America have affected the pig iron trade. The reason seems to be that Germany has practically taken the place of America as a foreign buyer, purchases having been altogether unprecedented. The slightly reduced buying at home has caused some little accumulation of stocks in Cleveland makers' hands, but the total is probably not more than 5,000 tons. The warrant stores are now reducing very slightly and occasionally the total increases by 1,000 to 2,000 tons per day. South Staffordshire pig iron remains very strong, largely owing to the big foundry demand, the only weak place being Northampton, where, it is said, some sales have been effected at 56s ($13.70). Nottingham and Derbyshire still retain their strength. A big trade in pig iron is anticipated during the next month. Hematites are said to be rather weaker, the fall being from 1s 6d to 2s per ton.

METAL MARKET.

NEW YORK.

Sept. 10.

Copper.—A disappointingly small volume of business has been placed as a result of the announcement of a week ago that the leading interests had dropped to 18 cents, cash in 30 days. This, however, is not to be wondered at, inasmuch as the smaller interests were already quoting a figure below this "official" price, when it was established. These smaller interests have been taking the bulk of the business for some time, though, of course, a certain amount was loyal to the leading producers. The decline will probably continue until a level is reached at which smelting becomes unprofitable for any except the larger concerns. We quote as follows: Lake, 17¾c to 18¼c; electrolytic, 17¼c to 17¾c; casting, 16¾c to 17¼c. Small reductions in copper sheets and copper wire are also announced.

Pig Tin.—The domestic market has centered itself in spot metal, the scarcity of which had led to the establishment of premium rates. A little better activity is noted and transactions are somewhat increased. The level of the market is about 37 cents.

Pig Lead.—As for several weeks past, the "official" figure on desilverized at New York is 5.25c, though outside brands can be had at considerable discounts.

Spelter.—The week has witnessed a further weakening in prices, presumably on the report that producing centers are accumulating stocks. Current quotations are 5.45c to 5.50c, New York, and 5.30c to 5.35c, St. Louis.

Antimony.—Current business is confined to a few small, spot transactions, which do not appreciably affect the market's weak tone. Cookson's is quoted at 10½c to 11c; Hallett's at 9½c to 10c and ordinary brands at 8¾c to 9¼c.

CHICAGO.

Sept. 10.

The largest drop this week is in pig lead. This has declined to 5.25c to 5.30c for 50-ton lots desilverized; and 5.90c to 6c for 50-ton lots corroding; car lots 2¼c per 100 pounds higher. Copper is soft with very little demand for same. Buying is from hand to mouth. Casting is now quoted at 19c to 19½c, and Lake, 20c to 20½c. Pig tin is higher, being offered at 39¼c for car lots, and 39¾c for less than carload lots. Spelter is unchanged at 6.10c. Sheet zinc also continues at $7.75 list f. o. b. LaSalle in car lots of 600-pound casks. Antimony is weaker, Cookson's being offered at 14c, and other grades at 13c to 13½c.

Prices on old material are without material change from hose quoted last week. Demand is inactive, but it is noticed that desirable stocks are scarce. Refiners are buying only from hand to mouth. We quote buying prices as follows: Copper wire, 15c; heavy copper, 15c; light copper, 14c; heavy red brass, 14c; heavy yellow brass, 11c; light brass, 8c; No. 1 red brass borings, 11c; No. 1 yellow bross borings, 9c; brass clippings, 11c; tea lead, 3½c; zinc scrap, 3¾c; zinc clippings, 4c; tin foil, 28c; tin pipe, 33c; pewter, 25c; aluminum clippings, 31c; aluminum cast scrap, 28c; electrotype plates free from wood, 5c; electrotype dross, 3¼c; stereotype plate, 6c; stereotype dross, 3½c; prime slab zinc dross, $77 per ton.

ST. LOUIS.

Sept. 9.

Lead and Zinc.—A number of additional mines were closed down in the Joplin district Friday and Saturday of last week, as a result of a movement to restrict the output. Some of these mines were included in the general closing proposition inaugurated the preceding week, but discovered that unfinished contracts required them to operate a short while longer. The output of ore in the district was somewhat increased last week, as a result of the cleaning-up process, but with the addition of mines to the curtailment plan, it is estimated that the output this week will be reduced from 40 to 50 per cent. A few undesirable bins of ore were purchased at lower prices last week, but with these exceptions the prices of zinc remained about the same. The highest price paid for zinc was $45, and the assay-base price was $38 to $43 per ton of 60 per cent zinc. Saturday's prices on lead were unchanged for the bulk of the ore at $56 to $61, but late deliveries found offers of only $50 to $54 per ton.

Union molders at the Janney plant of the structural department of the Caldwell and Drake iron works at Columbus, Ind., are striking for an increase in wages. The company is not inclined to grant the demand and the molders have gone into a fishing camp, declaring they will stay until the demand is granted.

BEST YEAR.

(Continued from page 407.)

finishing on the ground this considerable tonnage of the company's output which it has heretofore been necessary to market in a raw or semi-finished state. In addition to the foregoing improvements, there is now being added to your present equipment one basic open-hearth steel furnace, which will increase the company's output of raw steel over 10 per cent. All of these improvements should be completed by the latter part of the calendar year.

General Review.

Throughout the year there was a well sustained demand for your company's products and the prices realized were in the main consistent and remunerative, one gratifying feature of the year's business being the advance in the price of tubular goods which took place the latter part of the first half of the fiscal year.

Owing to the growing tendency on the part of finished material prices to seek a more consistent level as compared with raw material prices, the indications are that the conditions that have prevailed over the last two years will to some extent be reversed, and higher relative profits will be derived from the finishing end of the business.

In view of the somewhat unsettled financial condition of the country and the resultant tendency on the part of the railroads and other large users of steel products to curtail expeditures, it is difficult to forecast the coming year's business; but with average crops, together with the generally prosperous condition of the country, no serious setback to the steel trade in the very near future seems probable. In any event, with the rounding out of the company's plants, as will come about with the completion of the improvements now under way, your company will be in a better position to successfully compete for its full share of going business than ever before.

Income Statement.

Earnings from Operations for the year ending June 30, 1907			$2,635,154.77
Less:			
Provision for Exhaustion of Minerals and Extinguishment of Lease Values, Development, etc		53,007.80	
Provision for Contingencies		125,000.00	178,007.80
Net Profits for the Year			2,457,146.97
Deduct:			
Interest on six per cent Mortgage Bonds		150,000.00	
Dividends on Capital Stock, viz.:			
Capital Stock Dividend	550,880.00		
Cash Dividends	583,916.00	1,134,796.00	1,284,796.00
Surplus for the Year			1,172,350.97
Surplus at June 30, 1906			2,228,459.02
Total			3,400,809.99
Less:			
Special Depreciation			250,000.00
Net Surplus at June 30, 1907			$3,150,809.99

By federal court decree, an award of $75,000 against the Diamond State Steel Co., in favor of the Philadelphia Warehouse Co. has been granted in payment of an obligation held by the Philadelphia company before the steel concern went into the hands of receivers.

LACKAWANNA FORCES MEET.

Buffalo, N. Y., Sept. 11.—Representatives of the sales department of the Lackawanna Steel Co. arrived in the city this week for one of their periodical meetings with the operating and departmental heads. Ways and means for the continuance of the good results obtained by the present management were the topic of discussion at the opening session.

In bringing its representatives from all of its principal agencies, the management and other organization members receive the benefit of the resultant exchange of views, and it is learned that meetings of this character are to be held more frequently at the plant where the company's product is actually turned out.

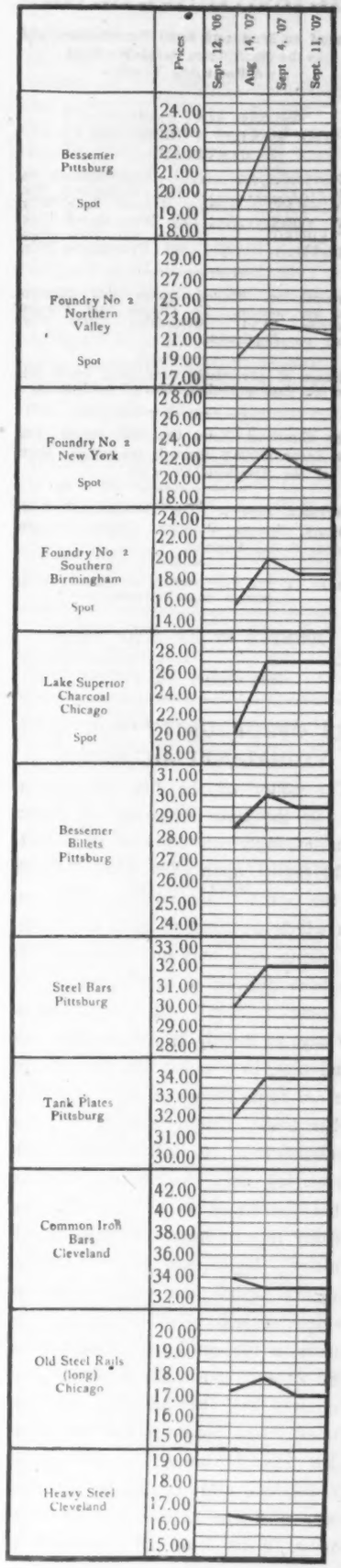
Besides the local officials, those present are:

H. Sanborn Smith, general sales agent; A. J. Singer, assistant to President E. A. S. Clarke; W. E. Howes, asistant to Traffic Manager George F. McKay; E. Baerwald, export agent, all from New York; sales agents J. W. Sederquoist, Boston; J. C. McLauchlan, Detroit; E. H. Busch, J. I. Stephenson, Cincinnati Iron Store; J. P. Nicholas, Chicago; C. D. Rhodes, Cleveland; C. E. McInnes, Philadelphia; J. E. Franks, Atlanta, Ga.; C. W. Pike, San Francisco; E. W. Mudge, B. G. Campbell, Pittsburg.

The meeting was followed by the usual dinner and theater party.

Firm Incorporates.—The pig iron, coal and coke business heretofore carried on under the firm name of Elliott, Debevoise & Anderson, 95 Liberty street, New York, has been incorporated as the Debevoise-Anderson Co., with a capitalization of $25,000. Niles Anderson is president, and Paul Debevoise secretary and treasurer. This business was started in December, 1905, by the firm of C. T. Elliott & Co., and in the following March Mr. Anderson was admitted to partnership.

PRICE CHART.



THE IRON TRADE REVIEW

Devoted to Iron and Steel Manufacture and to the Machinery, Metal-Working and Foundry Trades

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THE OPPORTUNITY FOR INDIVIDUAL EXPLOITATION.

The editor of the *Financial Chronicle* in the issue of Aug. 31 quotes commendingly our editorial of a fortnight earlier upon "The Slow Growth of the South." He emphasizes a reason which we touched upon but lightly, taking as a text our sentence: "It has been difficult to secure money for the south * * *." All that the *Chronicle* says is strictly true from our own standpoint, in a sense, but there is an inferred sense in which it is not altogether true. Unquestionably for the development of its railroads the south has needed more northern capital than it has been able to secure, with the hostility to corporate enterprise which southern legislators have shown. Northern capital was needed also for the development of other material resources in the south, and would have stood in good stead for a greater development of the south's iron resources. The inference is not altogether fair, however, that the south has needed, and in particular now needs, northern capital for the expansion of its iron and steel industry to the same extent that it needs outside capital for other developments.

Fifteen years ago the south was making a great deal of pig iron, and southern iron producers thought, or at least claimed, that large profits per ton were being realized. If half were true of that which has been claimed, the southern iron industry should have made enough profits to be able to expand much more than it has, merely by the reinvestment of these profits. Some of these profits were not realized, but they could have been had southern producers followed more economical methods of manufacture. Had there been an institution in the south with half the energy and half the willingness to adopt economical methods which was displayed by the Carnegie company, the history of iron making in the south would have been totally different. Our thoughts were along this line when we said in our previous editorial: "Too much dependence has been placed upon the natural resources, and not enough upon the work of man."

It is our belief that the next period of development of iron and steel making in the south will be totally different in its methods and the measure of its success from that which may be said to be drawing to a close. Taking the American iron industry as a whole, it is clear that we are now between periods. The market signs have changed in the past nine months. Instead of pointing strongly to greater and greater demand, the index has wavered if indeed it has not pointed to lessened demand, yet there is still much new erection in progress, which will not bear fruit in increased productive capacity for months to come. For a time thereafter, much new erection cannot be looked for, but demand grows while it sleeps, and the time will come when the productive capacity of the United States must again be increased very largely. That will constitute a new period, and it is our firm belief that it will be a period of individual initiative and exploitation. It will be a time for small groups of investors to go forth and establish plants, based upon local deposits of raw materials, which are to be found largely in the south, calling for little if any outside capital, and depending for success, first upon their own energy and brains, and second upon the handicap placed upon the great Lake Superior deposits by the work of man.

Northern capital the south undoubtedly has needed, and still needs, but so far as concerns iron and steel development it will need public capital less in the future than it has in the past. It can grow by the investment of its profits and by the investments of individuals.

THE COPPER SITUATION.

The announcement made by certain leading smelting interests a week ago that they would accept bookings for copper on an 18-cent level again directs attention to the market for nonferrous metals, which all during the past year has been one of radical changes, second in interest only to those in iron and steel. Copper, in particular, has been closely watched, as since the first of July it has experienced two remarkable reductions in the so-called "official" price, first from the 25-cent level which a number of large producers attempted to maintain through the winter months, and recently from the 22-cent level established in July to the 18-cent price now offered. Current prices are approximately the same as those of a year ago, but the situation is entirely different, inasmuch as then the trend of things was strongly upward, while at present the tendency is unmistakably downward, the only apparent chance of a halt in the decline resting in an early beginning of the long-expected buying movement.

This striking failure of the attempt of leading producers to maintain an established price has been due to a number of causes, the most conspicuous of which is doubtless the decreased consumption rate. The exact extent of this decrease is a matter of varying estimate, but there is no denying its existence. The price actually reached about mid-winter and

artificially maintained for several months thereafter was high almost beyond recent precedent, and to this a considerable part of the lessening in demand is probably correctly attributed. More limited consumption naturally led to the accumulation of stocks, chiefly in the hands of the larger producers, as the smaller interests were quite willing to quote moderate concessions in order to secure what business was going.

In short, the situation early in the year resolved itself into a "buyers' market," and consumers, eager to make the most of their advantage, took on only enough metal from time to time to cover their immediate needs, thereby adding to accumulations. Both reductions in the "official" price, though sweeping, fell just short of the mark, in that they merely approximated the actual selling level at the time and hence failed to stimulate active buying, as was expected. Some important selling was done by the larger smelters, it is true, but this was not in proportion to the business closed by the smaller interests.

As to the outlook, only a conjecture is possible. It is known, however, that manufacturers' storehouses are nearly empty and that within a relatively short time these stocks must be replenished. Furthermore, there is no one who will claim that the reduction in purchases during recent months has not been greatly in excess of the reduction in melt. The business world is finding collections difficult, but otherwise there is no cause for undue uneasiness. At least average crops are now assured and developments of the past few days indicate some improvement in manufacturing activities during the winter. There is no apparent occasion for the bottom falling out of metal prices, but they are still at a fairly high level and moderate declines may still be met with before the stationary stage is reached or the turn comes.

The National Association of Wire Manufacturers held its annual meeting at Bristol, R. I., Sept. 6 and 7, with delegates present from all parts of the country.

FRENCH MOLDING MACHINES

Discussed at the Meeting of the Philadelphia Foundrymen's Association.

The first meeting of the Philadelphia Foundrymen's Association since the summer was held in the evening of Sept. 4 at the Manufacturers' Club, when H. L. Haldeman presided in the absence of President Thomas Devlin. The feature of the evening was a pictorial description of the universal system of machine molding of Messrs. Ph. Bonvillain & E. Ronceray by the use of the ordinary stereopticon and the cinamatograph.

The paper was announced as by Monsieur E. Ronceray and was in every sense his work, but at his request the description of the illustrations and the remarks about the machines were made by E. H. Mumford, of the E. H. Mumford Co., which has undertaken the American agency for the sale of these machines, in addition to its own.

The ordinary lantern slides were first used for purposes of description, and the operation of the machines was then shown by the cinamatograph views, which made the working of the machines almost as vivid as if observed in actual work at the foundry.

A brief discussion of trade conditions followed, in which several members stated that there had, as yet, been no recession in business with them, but that they anticipated it in the near future.

Previous to Mr. Mumford's talk a report was made on the winding up of affairs of the recent annual convention of the American Foundrymen's Association, in which the very gratifying statement was made that over $9,000 had been collected for the entertainment of visitors and that less than half of this had been spent, so that there remained for contributors a dividend of 50.08 per cent of their subscriptions, which had been returned to them. Marshall Cushing made an address on the project for enlarging the usefulness of the Manufacturers' Club by erecting a new building and extending its scope at a cost of $2,000,000. Mr. Cushing also spoke very hopefully regarding the future prospects of the business world and said there is no reason to be alarmed by the present condition of affairs.

The big plant of the Pope Mfg. Co. at Hartford, Conn., resumed work Sept. 3.

RECEIVER NAMED FOR UNION IRON & STEEL CO.

Upon the petition of the Norton Coal Co., Judge A. W. Skeen, of the United States district court at Bristol, Va., has appointed Col. L. C. Petitt receiver of the Union Iron & Steel Co., operating furnaces at Big Stone Gap, Va., Chatham, N. Y., and Ironton, O. The Union Iron & Steel Co. is a $2,000,000 Delaware corporation formed from the Union Steel & Chain Co., capitalized at $60,000,000, which was organized by Edward L. Harper, formerly of Cincinnati, and once president of the Fidelity National bank of that city. Of the company's capital, $1,000,000 is seven per cent non-cumulative preferred, and $1,000,000 common stock at the par value of $100. The officers of the company are: President, William Rotch; vice president and general manager, Edward L. Harper; secretary, Edward L. Harper Jr. The treasurer, Thomas S. Holmes, died recently. The directors include, besides the officers, William H. Binnian, E. K. Stallo and James L. Wolcott. The offices of the company are at 71 Broadway, New York. A number of large judgments against Harper are on record, and it has been declared that the appointment of a receiver was part of a plan of his creditors to uncover assets to offset these claims. Charles Peters, superintendent of the Ironton plant, has been named as receiver in charge of that furnace.

PITTSBURG FOUNDRYMEN'S ASSOCIATION.

The first fall meeting of the Pittsburg Foundrymen's Association was held in the banquet room of Hotel Henry, Pittsburg, Monday evening, September 9. Mr. Elliot A. Kebler, of Mathew, Addy & Co., read a paper on "Selling for the Foundry," advocating a better cost system for foundries, a closer check between original estimates and actual costs, and the elimination of guess work. W. B. Robinson, of the Pittsburg office IRON TRADE REVIEW, read a paper on "Publicity," pointing out the value of trade papers both as a buying and selling agency and as a corrective influence. Thos. B. West and Dr. Richard Moldenke were unanimously elected honorary members of the association, and the Pittsburg Malleable Iron Co. was elected to membership. A new membership committee consisting of H. E. Field, E. D. Frohman and Elliot A. Kebler was appointed. The annual election of officers will take place at the next meeting, the first Monday in October.

HEAVY SHIPMENTS

Continue at the Head of the Lakes—Mine Taxation Discussed.

Office of THE IRON TRADE REVIEW,
411 Providence Bldg.,
Duluth, Sept. 9.

While the shipments at Two Harbors and Allouez were at the same rate during the past week as in August, the Duluth dock, through idleness on both Sunday and Monday a week ago, fell off in proportion. The figures from the three ports are as follows with comparisons from a year ago: Duluth, 397,337 tons, last year, 386,399; Two Harbors, 321,220 tons, last year, 284,102 tons; Superior, 313,993 tons, last year, 194,372 tons. The total for the week, therefore, was 1,032,550 tons, as compared with 864,873 tons in the same week last year, or a gain of 167,677 tons. At Duluth the boats were considerably congested for a day or two after Labor day, and several boats had to anchor in the harbor both for the ore docks and coal docks. The other docks were able to take care of their boats with fairly good dispatch and at all of them the situation is very fair at present.

The meeting held at St. Paul last Friday for a conference of mine operators and owners with the tax commission was adjourned at the request of the mining men in order that they might prepare themselves for showing wherein the classification of mines for taxation by the commission was unfairly made. When the plan of the commission was outlined to the mining men, being a classification of properties into operating mines and prospects and further subdivisions under these heads, objection was immediately made and a second meeting is being held today. The commission has been given credit for a sincere attempt to establish a fair basis for valuation, but it is an extremely difficult problem for men not in the mining business to see things at the same angle after a few weeks' trip as do men who have been directing the mining industry for years. A fair valuation, even though it be an increased one, would not meet with objection, but a basis established upon values at any single time, as the present one of high prices, is deemed unfair to an industry which must meet the ups and downs of long periods. It would seem that ultimately the basis for taxation would be ore in the ground, with a scale of values per ton depending on the size of the ore body.

Practically every mining interest in Minnesota is represented at St. Paul, fearing evidently that an excessive valuation will be fixed by the board of equalizers which sits on Tuesday. So far as the townships are concerned an increased valuation will mean simply a reduced rate, but that proportion which goes directly to the state will be increased with the valuation.

LARGE BALANCE

Reported in Treasury of International Association of Machinists.

(Special Correspondence.)

St. Louis, Sept. 9.—Delegates representing machinists of the United States, Canada, Mexico and the Isthmus of Panama, as well as representatives of local labor organizations, packed Druid's hall to its utmost capacity when the twelfth convention of the International Association of Machinists began its work this morning. The opening reunion was given over to addresses of welcome by local union men and response by the officers of the association.

The report of President James O'Connell was a comprehensive one, and dealt with many questions pertaining to the craft.

The Financial Condition.

As to the financial status of the organization, the report says: "I was anticipating great pleasure in being able to report to this convention that we had passed the $200,000 mark in our grand lodge bank account. Owing to the large number of strikes in which our members are involved, greatly increasing our weekly payroll I am able to say that on July 1 we had a total cash balance of $148,224.50." The report shows total cash benefits paid for strikes from April 1, 1891, to July 1, 1907, to have been $1,212,108.40.

Since the union began paying death benefits in 1898, there has been a steady increase in the amount paid each year, the total for the entire period being $150,776.10.

According to the report there were 136 strikes in the trade from July 1, 1906, to July 1, 1907. Many of these strikes were in small shops, scattered throughout the country.

Continuing, the report says:

"Our membership is becoming very active in securing the eight-hour work day. This subject will undoubtedly receive much attention during our convention," the report says.

"We all agree that eight hours is the natural and rational allotted time for men to work daily. The inauguration of the shorter work day is being persistently fought by the employers of labor, and in no particular trade that I know of is the opposition so bitter as in that of the machinists.

"I am convinced that if a date is set far enough ahead and properly prepared for in advance, the nine-hour day can be established on all railroads without incurring any great liability either in strikes or financial loss. I am not favorable to attempting the shorter work day by piecemeal in the railway service or any other particular branch of our calling."

PIG IRON MEN WILL MEET.

Foundrymen in the Miami valley are arranging for a meeting to take action in reference to the recent advance in pig iron rates. W. B. Moore, commissioner of the Receivers' and Shippers' Association of Dayton, O., has been called upon to arrange for the meeting which was to have been held on Sept. 11, but it has been postponed to some later date. E. E. Williamson, commissioner of the Receivers' and Shippers' Association of Cincinnati, has also been interested in the matter.

The foundrymen regard the recent advances in pig iron rates as unwarranted, and may take legal steps to obtain relief. The legal phases of the situation are to be taken up at the meeting and a course of action discussed. It is believed that a remedy can be found under the Sherman anti-trust law.

SURPLUS FOR QUARTER.

President J. C. Maben, of the Sloss-Sheffield Steel & Iron Co. has given out the financial statement of the company for the quarter ending Aug. 31, as follows:

Earnings of Sloss-Sheffield Steel & Iron Co. for the quarter ending August 31, 1907, (August estimated):

Profits from operations.....		$507,676
Deduct three months' interest on bonds.....	$52,500	
Deduct three months' proportion of taxes.....	9,810	62,310
		$445,366
Three months' dividends on preferred	$114,000	
Three months' dividend on common	125,000	239,000
Surplus after dividends.....		$206,366

FIRE BRICK OUTPUT.

The production of fire brick in the United States in the calendar year 1906 amounted in thousands to 770,839, of the total valuation of $14,206,868, or an average price per thousand of $18.43, according to the report of the United States Geological Survey on the output of the clay products of the country. Corresponding totals in 1905 were 679,971 in thousands, of the total valuation of $12,735,404, or an average price per thousand of $18.73. Pennsylvania is shown to be the largest producing state with 374,857 in thousands.

OBITUARIES.

Capt. Amaziah Winger, for many years head of the Superior Drill Co., until that concern was absorbed by the American Drill Co., died at his home in Springfield, O., Aug. 14, aged 72. He was a director in the Owen Machine Tool Co. and in several banks at the time of his death.

William A. Allerdice, at one time connected with the Akron Iron Co., Akron, O., through which he placed on the market his patent for the manufacture of cold drawn shafting, died Sept. 4 at New London, Conn. From Akron, Mr. Allerdice went to Warren, O., where he was connected with a plant for the manufacture of cold drawn piping.

Prespey Perault, founder and owner of the Perault Foundry, Worcester, Mass., died suddenly Sept. 1 at the age of 70. He was a native of Canada, but had lived since boyhood in the United States. After learning his trade he became foreman of the Smith & Page foundry, Fitchburg, Mass., and in 1869 established the business which he conducted up to the time of his death.

Prespey Pero, a well-known foundryman, died at his home in Worcester, Mass., Sept. 1, aged 70 years. Mr. Pero came to Worcester in 1869 and had been engaged in the foundry business ever since. Before coming to Worcester he was foreman in the foundry of Smith & Paige, Fitchburg, and started his Worcester business in company with Horace Clark, who died a few years ago. Mr. Pero leaves five brothers, all prominent in the foundry business in various other cities in New England.

Capt. William H. Travis, a prominent iron and steel manufacturer of Wheeling, W. Va., died at his home in that city, Aug. 20 from complications which developed from a recent operation. He was 67 years of age and began a life of hard work at the age of 12 in a Wheeling nail house which carried him into nail manufacturing and finally made him manager of the La Balle Iron Works. For over 40 years he occupied this position at the plant and held it at the time of his death, exercising a strong influence in the development of the enterprise.

John A. Furgason, one of the best-known iron men in Indiana, died recently at his home in Indianapolis, aged 77. As a young man Mr. Furgason came to Indianapolis and found employment in the Eagle Machine Works, and in the foundry of Hasselman and Vinton. A few years later, he took service with the wholesale iron concern of Murphy & Holliday, later becoming a member of the firm, which was then known as W. J. Holliday & Co. About 12 years ago Mr. Furgason retired from business, terminating his connection with the company.

H. W. Hill, president of the Hill Clutch Co., Cleveland, died Sept. 7, aged 54 years. Mr. Hill had been in poor health for two years. His death was caused by cancer. He came to Cleveland in 1886, at which time he and Jacob B. Perkins began in a very small way the manufacturing business which developed into the present large concern. He was an inventor of marked ability, and as a designer of

H. W. Hill.

power transmitting machinery had few equals in the United States. His modesty prevented him from attaining the prominence which his ability warranted, but he was a member of the Cleveland Chamber of Commerce and took an active interest in the Manufacturers' Association, of which he was president several years ago during a serious strike, and conducted its affairs with much success. He was a man of strong character and rare purity of life.

Col. J. M. Westcott, a well-known manufacturer of Richmond, Ind., died Aug. 25. Col. Westcott was particularly known in the manufacturing field by his connection with the Hoosier Drill Co., which he founded a quarter of a century ago, and of which he remained its president until its obsorption by the American Seeding Machine Co. He was also identified with other varied interests at Richmond. Col. Westcott's son-in-law, James A. Carr, is vice president of the American Seeding Machine Co. and his son, Burton J. Westcott, is treasurer of the same company.

PERSONALS.

E. T. Coe, treasurer of the Coe Brass Mfg. Co., Hartford, Conn., retired from business Sept. 1 after 40 years connection with the company.

D. B. Merrick, of Bridgeport, Conn., has been made general superintendent of the shovel and rolling mill departments of the Penn Shovel Mfg. Co., Warren, O.

Clay Sprecher, for several years manager of the Cleveland office of the Allis-Chalmers Co., has resigned to become traveling representative of Arthur G. McKee, Reckefeller bldg., Cleveland.

K. W. Blackwell has resigned as managing director of the Montreal Steel Works, Montreal, Quebec. He retains the presidency of the company. W. F. Angus has become general manager.

John L. Klindworth has resigned his position as chief draftsman of the steel works department of the Jones & Laughlin Steel Co. to take charge, on Sept. 16, of the rolling mill engineering department of the Mesta Machine Co., Pittsburg.

B. G. Baker, formerly manager for the J. I. Case Threshing Machine Co. at Minneapolis, has been installed as manager of the Avery Mfg. Co.'s branch office at Omaha, Neb., filling the vacancy caused by the resignation of H. L. Jones.

F. E. Wilkinson, who has been connected for many years with the Fairbury Iron Works & Windmill Co., Fairbury, Neb., has severed his connection with that company and purchased an interest in the Western Novelty Works of Fairbury.

R. R. Hillman resigned as general manager of the New York State Steel Co., Buffalo, effective Sept. 1. No successor to Mr. Hillman will be appointed and the works organization will remain the same under the direction of Superintendent F. E. Porter.

Charles H. Deere, president of Deere & Co., and Deere & Mansur, Moline, Ill., plow manufacturers, is seriously ill at a private hospital in Chicago, suffering from a constitutional ailment, which has affected his health for the past three years. Mr. Deere is 70 years of age.

W. T. Clark has resigned his position as assistant mechanical superintendent of the General Electric Co., Schenectady, N. Y., to become general superintendent of the Fairbanks-Morse Mfg. Co., Beloit, Wis. He assumed his new duties Sept. 1.

PIG IRON PRODUCTION FALLS OFF IN AUGUST

The addition of a considerable number of furnaces to the temporarily idle class for repairs in August has resulted in a decreased pig iron production in the United States for the past month as compared with July. August's total iron output reached 2,216,470 tons, against 2,253,243 tons in July, or a decrease of 36,773 tons. This falling off of production has also been in the face of several notable additions to the blast furnace capacity of the country, namely, the blowing in within the month of the new No. 7 Carrie stack of the Carnegie Steel Co. and the new No. 8 Cambria of the Cambria Steel Co. August's record of production falls decidedly under that of May, a month of equal length, which attained the high mark of production of the present year with 2,291,030 tons.

The average daily capacity of the furnaces in blast throughout the month in August was 71,465 tons, as compared with 72,685 tons in July.

Brought about by the fact that there were only 329 stacks in blast on Aug. 31, against 335 active furnaces on July 31, the average daily capacity of the country in blast on Aug. 31 was but 70,497 tons, as compared with 72,458 on July 31. As a forerunner of September's output, which must be made in 30 days against August's 31, this would indicate a still further reduction of total output, provided a greater portion of the idle capacity was not blown in in the early part of the present month.

Divided as to the consumption of the output, August's aggregate tonnage furnished 1,464,500 tons, which were consumed in the mills of the producing interests, while 724,602 tons were made to be offered upon the market as merchant iron.

AUGUST FURNACE REPORT.

STATE	NO. OF STACKS AUGUST	NO. OF STACKS JULY	NO. IN BLAST ON LAST DAY OF MONTH AUGUST	NO. IN BLAST ON LAST DAY OF MONTH JULY	PERCENTAGE OF TOTAL POSSIBLE OUTPUT MADE	AV. DAILY CAPACITY IN BLAST LAST DAY OF MONTH	ACTUAL TONNAGE MADE MERCHANT	ACTUAL TONNAGE MADE NON-MERCHANT	TOTALS AUGUST	TOTALS JULY
Pennsylvania	156	134	136	87.6	31,671	228,437	755,832	984,269	996,900	
Ohio	60	56	58	94.4	14,099	154,628	283,571	438,199	463,107	
Alabama	46	31	30	72.4	4,349	108,989	35,960	144,949	137,182	
Virginia	23	15	18	66.0	1,208	37,936		37,936	38,834	
New York	24	18	19	76.3	4,765	62,766	87,619	150,385	155,503	
New Jersey	11	8	8	70.7	1,130	34,361		34,361	34,788	
Illinois	24	23	22	95.3	6,995	23,405	187,989	211,394	213,382	
Tennessee	18	14	14							
West Virginia	4	4	4	71.3	2,282	39,565	30,380	69,945	69,109	
Kentucky	7	3	4							
Maryland	4	4	4							
Wisconsin	6	6	6	98.8	3,289	16,788	81,831	98,619	99,458	
Colorado	6	6	6							
Georgia	2	2	2							
Texas	2	1	1							
Minnesota	1	1	1	75.8	709	17,727	1,318	19,045	19,539	
Michigan	2	2	1							
Missouri	1	1	1							
Spiegel—All states								16,753	18,790	
Ferro—All states								10,615	6,651	
Totals	397	329	335	——	70,497	724,602	1,464,500	2,216,470	2,253,243	

BLAST FURNACE NOTES.

The Joliet Works furnace No. 2, of the Illinois Steel Co., blew in Aug. 5, after being out 21 days for repairs.

The Alice furnace, of the Youngstown Sheet & Tube Co., went out of blast Aug. 31.

The Bellefonte furnace, of the Bellefonte Furnace Co., Bellefonte, Pa., was idle during the entire month of August, having been blown out July 23 for relining and repairs. The furnace is now in operation again.

The new Cambria No. 8 stack, of the Cambria Steel Co., was blown in Aug. 8. The new Carrie No. 7 stack, of the Carnegie Steel Co., also came in Aug. 2.

The Citico furnace, of the Citico Furnace Co., Chattanooga, Tenn., was idle from Aug. 10 to Aug. 27.

The West End furnace, Roanoke, Va., went out of blast Aug. 6 for relining and general repairs.

The Virginia Iron, Coal & Coke Co., Bristol, Tenn., put in blast during August its Reed Island and Foster Falls furnaces for the making of cold blast charcoal iron.

The Allegheny furnace, of the Allegheny Ore & Iron Co., Clifton Forge, Va., was idle during the entire month of August for repairs, and it is expected to be blown in about Sept. 15.

Owing to the scarcity of coke, the operations of the San Lanham furnace, Rusk, Tex., owned by the state of Texas, were seriously handicapped during August and a small production was made.

No. 3 furnace, of the E. & G. Brooke Iron Co., Birdsboro, Pa., was blown out last week for the relining of the stack, which is expected to take about five weeks. This is the furnace which was equipped with the Gayley dry blast. The dry blast has also been recently installed in one of the Warwick Co.'s furnaces at Pottstown, where it is showing very good results.

DIVIDEND IS EARNED.

In connection with the declaring of the first dividend of $1 per share, payable Sept. 16, to the holders of certificates of the Great Northern Ore Co., Jas. J. Hill, chairman of the board of directors, is quoted as follows:

"The $1,500,000 for this dividend is already in hand. It has been earned, but it didn't come from any payments made by the United States Steel Corporation. The steel interests haven't yet begun to move any ore. The payment just declared is nothing to what is coming. Whether the trustees intend to announce another disbursement of $1.50 a share before the end of this year, I don't want to say. The trustees will pay out the profits when they are earned."

Surplus Increases.—The balance sheet of the Page Woven Wire Fence Co., Adrian, Mich., as of July 1, 1907, shows a surplus of $1,088,469, against $509,702 a year previous. The company has reduced its common stock from $5,000,000 to $1,000,000 by changing the par value from $100 to $20. The preferred stock remains at $1,000,000, and the bonded debt is $1,400,000.

COLD BLAST CHARCOAL FURNACE IN BALD EAGLE VALLEY, PA.

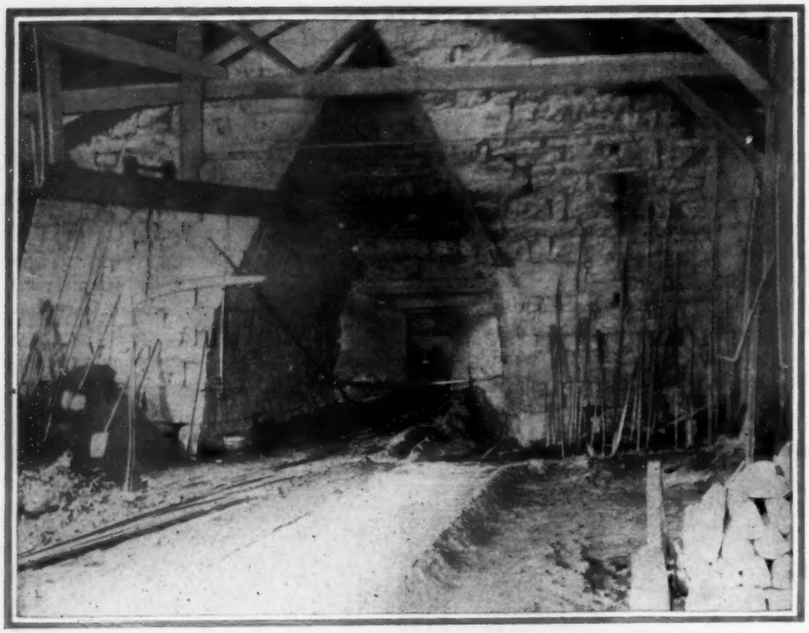
The Bald Eagle valley extending from Lock Haven to Tyrone, Pa., in the early days of the iron business in the United States, was an important factor of the industry which is now the largest in our country. Long befor the Civil war, long before the Mexican war, and as a matter of fact only a short time after the close of the Revolution, Center county boasted of its blast furnace as did Bedford county, now a part of Blair county and Huntington county. At one time Center county alone boasted of 11 cold blast charcoal furnaces. They were Center, Julian, Bald Eagle, Martha, Hannah, Milesburg, Valentine, Heckla, Curtin, Howard and Mill Hall. Of this at one time formidable array, but two furnaces—the Heckla at Milesburg and Curtin at Curtin—both in Center county are still in active operation. The ruins of several of the remaining old furnaces still stand on the hill sides of what is now a prosperous farm country, but they are overgrown with trees and bushes and with no sign in their vicinity of their former use.

This article will deal more particularly with the Curtin furnace, inasmuch as it is the older by many years, and stands now in practically the same shape and is operated in the same manner as during the early days when it was first erected. Its founder was Roland Curtin, father of Andrew Gregg Curtin, war governor of Pennsylvania. The original Curtin furnace was built about 1790 and was located within a half mile of the present Curtin furnace.

The other old furnaces taken in the order of their location in the valley were Bald Eagle, originally built by Lyons, Shorb & Co.; Julian, built by General Irwin and for a time operated by him; Hannah and Martha furnaces, built by General Irwin and named for his two daughters; Heckla furnace at Milesburg, built by General Miles, a grand-uncle of Mrs. Harry R. Curtin, wife of the present manager of Curtin furnace; Curtin furnace at Curtin; Valentine furnace at Bellefonte was erected by Valentine and Milliken, and later dismantled and replaced by the present 100-ton stack of the Nittany Iron Co., and the Howard furnace at Howard, built by John Irwin Jr. and subsequently owned by Bernard Lawthe. All of these furnaces were what is still known as quarter-stacks. All used native ores with charcoal as fuel and equipped with cold blast, operated first by over-shot water wheels, and later by the up-to-date turbines.

THE OLD STACK, CURTAIN IRON CO.

The products of the present Curtin furnace originally found market in castings of stoves, kettles, pots, etc. Subsequently Roland Curtin erected a forge in 1809 for the production of blooms and slabs for general purposes, with a specialty of charcoal blooms for boiler plates, boiler tubes, rivets and screw rods. This forge with its six knobbling fires, old fashioned helve hammer, and wooden under-shot water wheel, has been remodeled and operated by a Huston turbine is still in



INTERIOR OF CAST HOUSE.

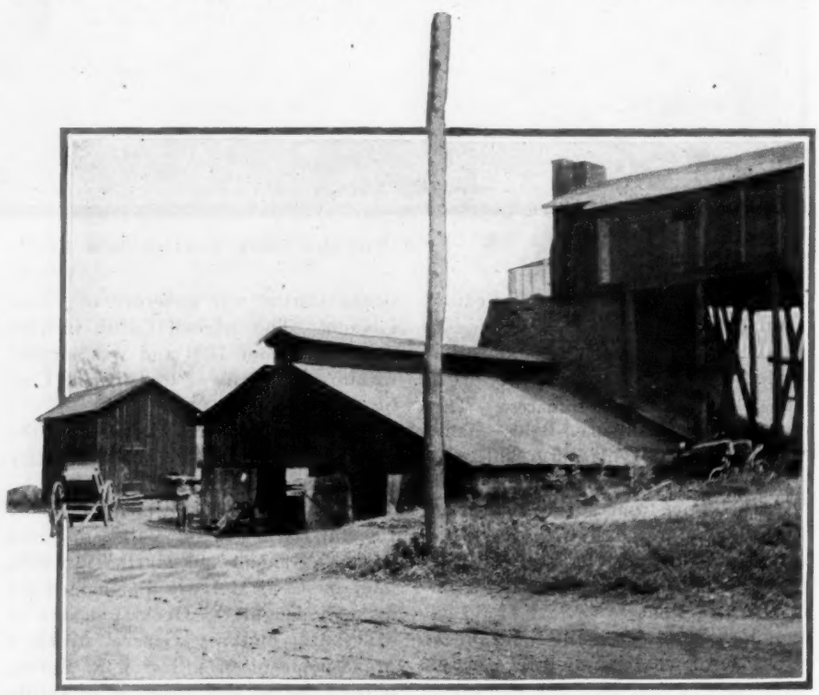
operation with 12 fires, and has an annual capacity of 5,000 tons of charcoal blooms made from scrap. The blowing capacity is equal to 12 knobbling fires but the hammer capacity is not sufficient to take care of this number of fires excepting in double time. The old hammer helve weighs 2½ tons, has a drop of 2 feet and strikes a 4-ton blow. The blooms consist of converted bundled sheet scrap, and are used largely at the present time by the Reading Iron Co. in the manufacture of boiler tubes.

The furnace, several views of which are shown in the accompanying illustrations, was built in 1828, is a quarter-stack, 29 feet high with an 8½ foot bosh, cold blast, open top, open front and open tuyeres. The output of the furnace is five to seven tons of cold blast charcoal iron per day. The casts which are made every eight hours are run into sand molds. The open front furnace, such as the one at Curtin, has passed out of the minds of modern furnace men and aside from a few of the very oldest, who in their early days were connected with these furnaces and those now operating them, the idea conveys a practice so primitive as to be almost unbelievable. Skip hoists, charging cars, bells, dust catchers, down comers and a score of other features, indispensable in the operation of modern blast furnaces are unknown, or at least unnecessary with these cold blast stacks.

The furnace is located near a hillside and connected with that hillside by a trestle work running to the top of the furnace. Upon this trestle is located the stock house, and the open top of the furnace is on a level with the stock house floor. On one side of the house is the ore pile, containing not much more than a good carload, and on the other side a similar quantity of lime stone. The charcoal is stored in a convenient building about 200 feet away. The furnace ore burden is from 700 to 900 pounds, and an average of 140 bushels of charcoal is used to a ton of iron together with a limestone charge of 600 pounds. One man and a donkey do the charging, which it may readily be seen is no difficult job.

The native Nittany valley ore, brown hematite, the same as was used for the last 100 years, is taken from an open pit mine, varying in depth from ten to fifty feet and located about three miles from the furnace. Before being shipped, the ore is washed by the ordinary two-log washer with reversed teeth and after being cleaned by friction, is run out over a sand screen and is ready for use. This ore runs 50 to 55 per cent metallic iron. Water for mining and cleaning is secured from artesian wells. In the early years, this ore was hauled from the mines on immense wagons drawn by mules, but with the construction of the Bald Eagle branch of the Pennsylvania railroad, a siding has been run into the mine, and ore is now taken to the furnace with a nine mile haul.

At one time the mines were abandoned and the furnace operation stopped, on account of the expense incident to securing ore by underground mining and driving shafts. They were reclaimed and the work converted into an open pit proposition. In the time of the old over shot-water wheel, the furnace was operated only during the summer months. Cold weather brought on ice and ice clogged the water wheels, and from that time until the opening of spring the furnace was in idleness. The blast for both the Curtin forge and furnace is now supplied, as has been mentioned, by the Huston



BLAST HOUSE, CAST HOUSE AND STACK.

CHARCOAL PIT BEFORE COVERING.

PIT PARTIALLY COVERED—A, OAK HEAT COVERING; B—DIRT OVER OAK LEAVES.

turbine with double blowing cylinders, six feet long and four feet in diameter, capable of developing four to five pounds pressure. The blast now used on the furnace is rarely more than one pound and averages nearer ¾ pound. The turbine gets its power from a 12-foot head on a dam supplied from Spring creek, Logan's branch, Bald Eagle creek and its tributaries.

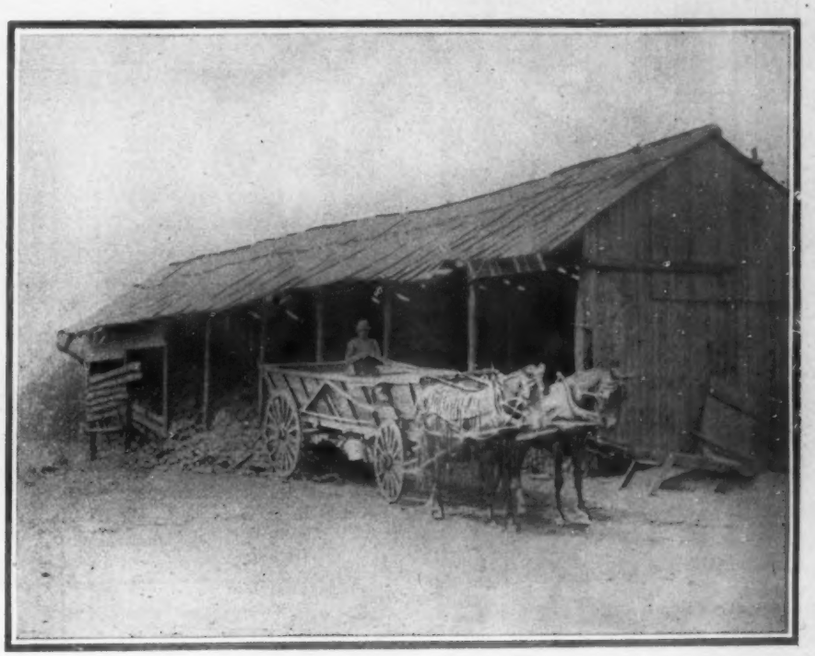
The furnace is lined with ordinary refractory brick, although conglomorite rock of the Allegheny Mountains is still used for the hearth. These hearth rocks are 6 feet long and 2 feet square. The practice now in use necessitates a new hearth about once a year, although the furnace, from the hearth to the top, does not require lining more than once in 8 years. There is but one tuyere to the furnace, and the blast is introduced through it from the compresser cylinder by means of a pipe from the turbine blowing engine house about 30 feet distant from the base of the furnace.

The slag is tapped from the front of the hearth which is open, about a foot above the iron bed, and is taken off with a long, iron bar injected into this slag tap and skimmed from the surface of the molten iron, this operation being performed whenever the accumulated slag is noticed to flutter in the open tuyere.

In 1825 the Curtins operated a rolling mill on this property, also run by water power, in which the blooms from the forge were converted into billets, bars, boiler plate, etc., with puddling departments for manufacturing refined bars in every shape, as well as a cut nail department. They, like many others, enjoyed the high tide of prosperity during the civil war and furnished a large amount of charcoal bars for guns. This mill was dismantled in 1889.

The organization controlling the Eagle Iron Co. operating the Curtin furnace, owns practically 10,000 acres of land in Center county of which about 7,000 is covered with timber suitable for charcoal burning. Curtin furnace consumes about 280,000 bushels of charcoal per year. The company cuts from its own lands about 6,000 cords of wood per year for charcoal burning, but this is not sufficient for the furnace requirements and the difference is bought in the open market from outside interests.

THE SKIP HOIST.



CHARCOAL STORAGE SHED.

IRON FOUNDRY OF THE HILL CLUTCH CO.

Gray Iron Plant Designed for the Production of Power Transmission Machinery Castings

A FOUNDRY building of unusual convenience, splendidly lighted and provided with transportation facilities that are unexcelled was completed in February of the present year by the Hill Clutch Co., Cleveland. The product of this company comprises clutches, pulleys, shafting and general power transmission machinery. The plant for the production of its work includes, in addition to the foundry, a shafting mill, and machine shop with the usual accessories. A new machine shop is contemplated, and the foundry plant which has just been erected was designed with a view to furnishing castings for a much larger shop than exists at present. Consequently, the present foundry is not operated to its full capacity on the regular work of the company, and considerable spare capacity exists for outside jobbing and manufacturing work. By taking in this extra work, the company aims to keep the plant full and to operate it at its maximum efficiency.

Plan of Foundry.

The foundry building, a plan of which is shown in Fig. 1, is 242 x 121 feet in dimensions. It consists of three bays. The two side bays have a flat roof, the center bay having a monitor extending entirely across the bay and is furnished with saw tooth skylights. As may be seen from the interior illustrations, the window space provided is exceedingly liberal—in fact the walls of the building consist principally of glass. As a result, the building is unusually well lighted, the ventilation is good, and it is a much more cheerful plant in which to work than the average foundry.

One of the three bays is used for pulley molding and light bench work; the center bay is used for large and heavy castings requiring pits, while the remaining side bay is used for general and medium size floor work.

The bay in which pulleys are molded is equipped with three jib cranes of about 20 feet radius, each of which is equipped with a one-ton air hoist. The center bay is provided with a 15-ton

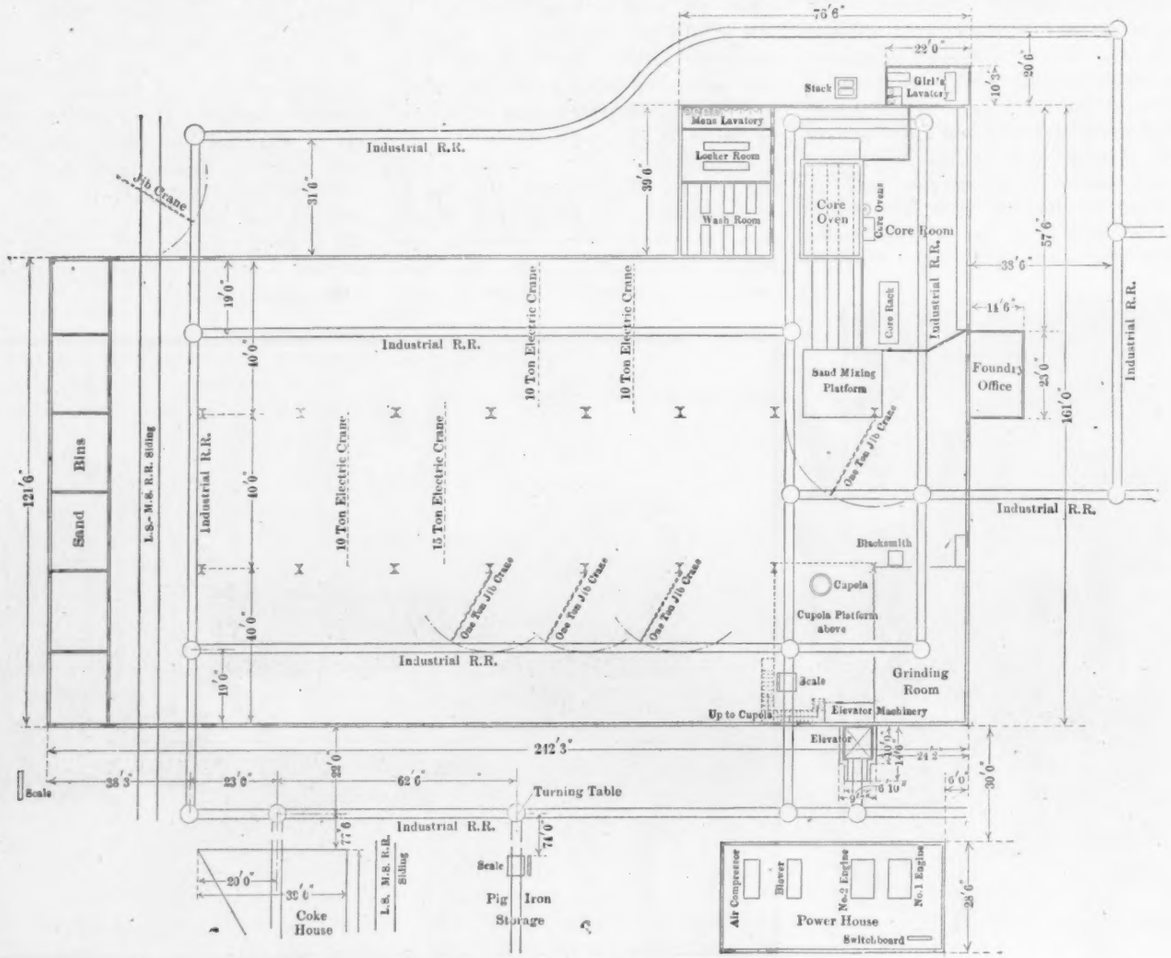
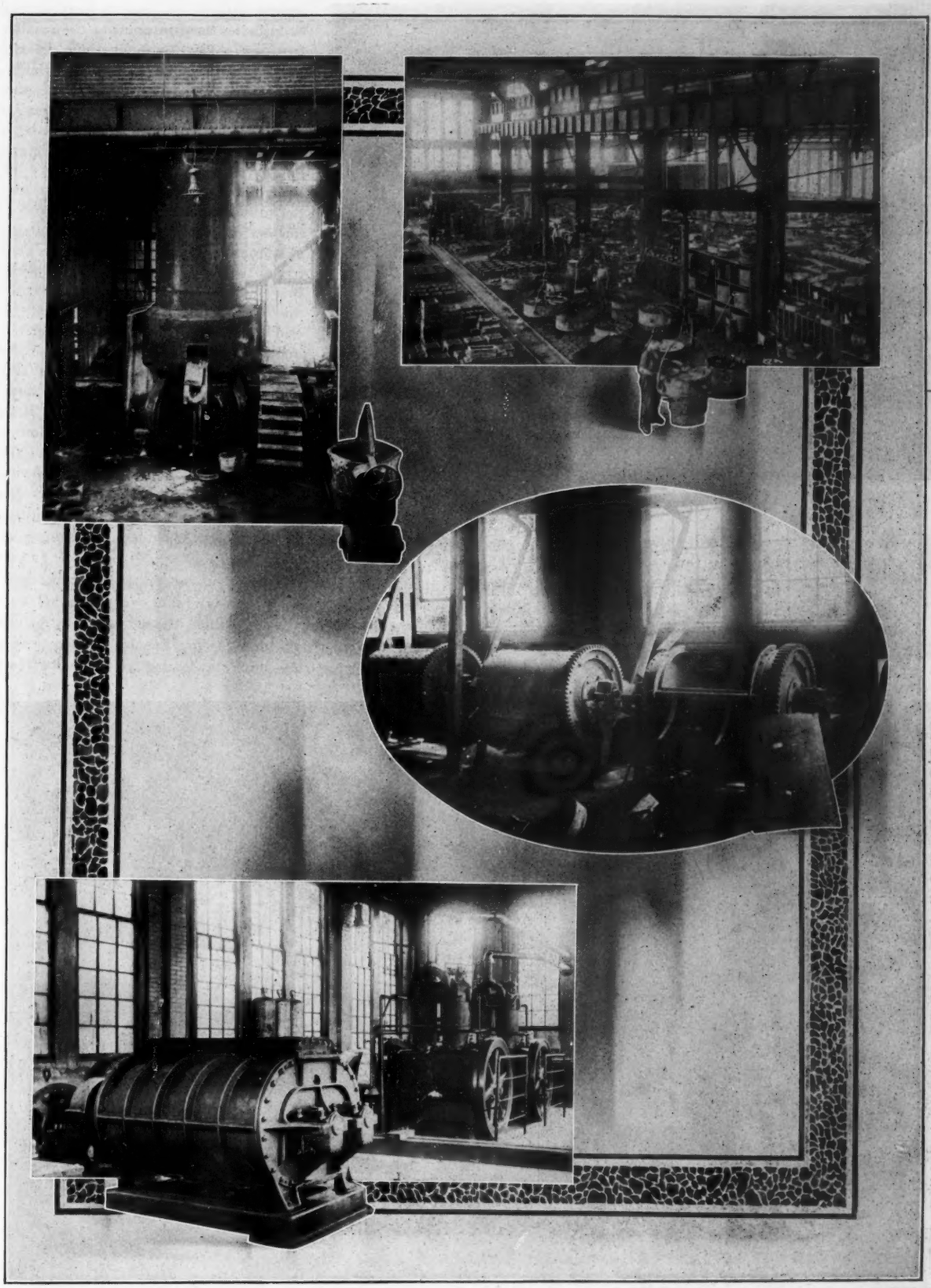


FIG. 1—PLAN OF THE FOUNDRY OF THE HILL CLUTCH CO.



THE CUPOLA
ENGINE ROOM

FIG. 2

MACHINE MOLDING DEPARTMENT
CLEANING ROOM

FIG. 3—PULLEY MOLDING FLOOR

and a 10-ton Niles electric crane, and a jib crane at one end, while the remaining side bay is spanned by two 10-ton Niles cranes.

Industrial Track System.

The entire foundry and yard is traversed by an exceptionally complete narrow gage track system. This extends into both side bays of the foundry, into the pig iron yard, the flask storage and the pattern storage, and also completely surrounds the foundry building. This track system plays an important part in the pouring of castings, as in the two side bays, buggy ladles are used which supply hand ladles used in pouring the smaller castings. The large castings in the middle bay are poured from bull ladles carried by the cranes. A standard gage railroad track crosses the building at the far end from the cupola, being a spur from the Lake Shore & Michigan Southern railroad. Castings may be loaded directly into cars brought into the foundry building and transferred to the machine shop, or shipped to outside customers. A second standard gage track extends across the outside of the building, being connected to the one inside the building. On this second track is a 125-ton track scale.

Four sand bins are located at the end of the foundry alongside the standard gage track. These communicate with the foundry through large doorways through which the sand is shoveled directly from the cars on the standard gage track. The bins being under cover and warmed from the foundry, the sand is in good condition at all times. A sand mixer is installed on a platform at the opposite end of the foundry, the platform being clearly visible in the view of the core room, being erected directly behind the double core bench. The sand from the bins is loaded on wheelbarrows

FIG. 4—MIDDLE BAY OF THE FOUNDRY

and picked up by one of the cranes and transported directly to the sand mixer. The sand mixer delivers to two chutes, one of which leads to the core room and the other to the general foundry.

Iron Storage.

The pig iron yard is large and well arranged and is served by both standard and narrow gage tracks. A track scale is placed on the narrow gage track, being roofed over and provided with a number of beams, so that mixing of the cupola charges can be effected directly on the scale car. Adjoining the pig iron yard is the coke storage, which is a covered building also reached by the narrow gage track system. The flask storage is located at one end of the foundry, ample space being provided for this purpose. A fire proof pattern storage has also been built. It is of brick construction and is divided into four sections by heavy fire walls.

FIG. 5—CORE DEPARTMENT

In the pulley molding department a large number of molding machines have been installed including four Walker machines for pulley molding, two Tabor pneumatic machines, two Tabor rockover machines, one Pridmore stripping plate and one Berkshire machine. The company has recently copmleted from its own design a 48-inch pulley molding machine, and has under construction two more machines of 60 and 72 inches capacity, respectively, thus enabling it to turn out machine molded pulleys of unusually large size. The illustration, Fig. 3, shows one of the pulley molding machines commanded by a jib crane air hoist. Pneumatic rammers are used on the larger molds, which are made in the center bay.

FIG. 6—ONE OF THE SIDE BAYS

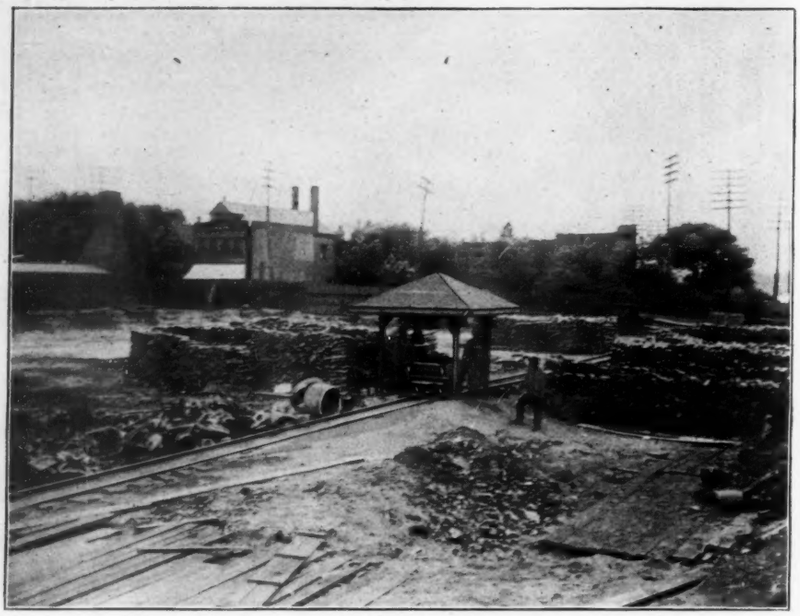


FIG. 7.—PIG IRON STORAGE.

Melting Equipment.

Metal is melted in a 72-inch Whiting cupola situated at one end of the foundry, in a line with the columns dividing the center from the pulley molding bay. This cupola is provided with two spouts at right angles to each other, so that it can pour into the two bays immediately adjoining it. The charging platform is reached by a Craig-Ridgway steam hydraulic elevator, which is operated, however, by air instead of steam. The charging platform is provided with a narrow gage track completely surounding the room, permitting the rapid handling of material. Blast is provided by a No. 6 motor-driven blower, located in the power house adjoining the plant.

Core Room.

The core room is situated at one end of the foundry, at one side, the opposite corner of the building being taken up by the cleaning room. A single bench and two double benches comprise the equipment of the core room, together with two core ovens, fired with coke. The completed cores are loaded on cars which run into the ovens. The front of the ovens is closed by a rolling shutter door. In an extension built at one side of the core room, a number of female core makers are employed. The company's reasons for employing female help in this department are that girls are naturally quicker than men; are more amenable to discipline and can be obtained cheaper.

Cleaning Department.

The cleaning room contains four rumblers and two grinding machines. A sand blast will eventually be installed. The rumblers and grinders are driven from a line shaft extending across the lower end of the foundry. This shaft also drives the sand mixing machine by means of a chain belt. Situated alongside the core ovens, are two brass cupolas, each with a capacity of about 600 pounds per day. Immediately behind the core rooms and in an extension are installed a lavatory, toilet room and locker room. These rooms are all clean and well kept, expanded metal lockers being provided for the men's clothing.

An unusual feature in connection with this foundry is the removal of all power generating and blowing machinery to the power house. The location of this power house is clearly indicated in the plan, Fig. 1. It is a building 59 x 28½ feet in dimensions and contains the following equipment:

Two 75-horsepower Rathbun gas engines, each direct-connected to a 45-kilowatt, 220-volt, direct-current generator; a No. 6 Root blower for providing wind for the cupola, this being driven by a 40-horsepower motor geared to it and a cross compound Ingersoll-Sargent motor-driven air compressor, driven by a 60-horsepower motor geared to it. Another auxiliary building operated in connection with the foundry is a flask shop, situated some distance behind the power house. About 200 men are employed in the foundry at present.

THE BLAST FURNACE.---VII

The Utilization of Blast Furnace Gases

BY HORACE ALLEN

The displacement of the steam engine by electric motors in most large manufacturing establishments is steadily advancing, steel and iron works being now equipped with large power motors for driving rail mills and accessories and most of the machinery where steam power previously held a monopoly.

Central electric power stations are becoming a leading factor of all modern iron and steel manufacturing works owing to the increased economy arising from the direct application of motors to both large and small power machinery and tools, in place of transmitting power by means of belts, steam pipes, etc.

Where blast furnaces are situated in the locality of the power requirements the gases escaping from the furnaces are being applied to drive gas engines connected to electric generators, and the new method may be compared to the old thus:

Old Material:

Gas, boilers, steam pipes, steam engine, dynamos, cables, motors, belts, ropes, or gearing.

New Method:

Gas, gas engine, dynamo, cables, motors, belts or gearing.

The average daily output of pig iron per furnace, in the United States alone, amounts to about 225 tons, and the weight of gases result-

ing from the partial combustion of coke, under furnace conditions, is about as one to six so that on a basis of one ton of coke per ton of pig iron, there would be given off 57 tons of combustible gas per hour per furnace. At the outlet from the furnace, this gas has a somewhat high sensible temperature, varying according to the periods of introducing the charges of ore, fuel, etc., but probably having an average temperature of not less than 700 degrees Fahr. The gas is conducted to some convenient distance in fire-brick lined tubes and flues before it is attempted to be applied as a combustible product.

At this stage besides being in a highly heated and expanded state it carries with it a more or less considerable amount of dust particles as well as a fine fume. To arrest the heavier particles of dust, such as fine coke and ore, dust-catchers are usually provided, but a considerable proportion of dusty matter is carried forward.

In the direct application of the gas for heating hot blast stoves and boilers the dust particles become deposited upon the checker work in the stoves and the tubes of the boilers, thereby reducing their conducting power proportionately. Even after the gas has undergone combustion in these applications, there is a persistent fume,[1] carried forward and which is ultimately discharged into the atmosphere from the stack.

The gas as it leaves the furnace top and traverses the flues, is under a slight pressure, but its entrance into the hot blast stoves, and boiler furnaces, is dependent upon the chimney draft.

Under normal conditions, chimney draft amounts to about ½ or ¾ inch of water pressure, but owing to changes in atmospheric conditions, this is at intervals reduced by 50 per cent and at times, as is well known to furnace managers, it is a difficult matter to get the gas to pass into the boiler furnaces at all; a contrary wind will sometimes so obstruct the draft that the gas only enters the combustion chambers of boilers and stoves, in a very sluggish manner, when it becomes almost impossible to proportion the amount of gas and air to that necessary for proper combustion, owing to the draft changing at short intervals. Under these conditions, it is of no great advantage to try to increase the efficiency by improving the type of boiler or stove. To recapitulate, the heat of the gas is an advantage in assisting combustion, but then it also renders it of less density, and the deposit of dust soon reduces the efficiency of any stove or boiler, however perfect; also any water vapor carried by the gas reduces its combustible proportions. The above remarks must be duly considered in connection with any claims put forward as the result of tests made when using the gas for combustion at atmospheric pressure. The author has on several occasions had to combat engineers who claim that the efficiency of the application of the gas directly in the internal combustion engine is not about four times that resulting on the average when the gas is burned in open furnaces.

The gas as it leaves the furnace outlet carries a sensible heat, about seven per cent of that capable of being generated by the fuel, and while this heat is useful for insuring the ignition of the combustible portion when employed for heating stoves and boilers, this advantage is discounted by the rarification of the gas and the presence of water vapor. There is very little loss of sensible heat in the flues and tubes employed in ordinary furnace practice owing to the character of the material of which the flues are built, and the lining of the tubes. Also, owing to the rarification through the sensible temperature, the expanded gas traverses the passages at such a high velocity that the weight of dust carried along is considerable. To attempt to cool the whole volume of gas evolved is a matter of difficulty and outlay, but, the benefit would be considerable for this would result in a reduction of volume; the vapor of water would be condensed; a large proportion of the dust would be deposited by the "fagging" of the vapor and condensation; and the combustible power of the gas would be raised per unit of volume.

The heat power of the gas is largely in excess of the power requirements of the blast furnace itself, such as raising the materials required for smelting and blowing the air, with all accessories but to turn this by-product to useful purposes the purification from mechanically associated particles is a *sine qua non*.

Until the year 1832 this gas was allowed to escape as waste into the atmosphere, when J. P. Budd showed that it could be utilized for heating purposes. This brought about the closing of the furnace top, and conduction of the gas to air heating stoves and boilers, without condensation or purification. The result was a large saving of fuel for heating the blast and raising steam. B. H. Thwaite's discovery (1894) that the application of purified gas was capable of giving a much higher efficiency if applied directly to the driving of internal combustion engines has revolutionized the system of heat recovery from this by-product, and no modern blast furnace plant is devised without including the cleaning of the gas and the development of its power to the fullest extent. As long as the gas was only applied to the heating of the blast and power requirements of the furnace it is obvious that any stoppage of the furnace also put an end to the necessity for a gas supply, but, if the utilization is to be carried to the fullest extent it is necessary to provide that the machinery adopted may be available continuously.

Although the gas is given off day and night all the time the furnace is maintained active, ranging according to the method of driving from about two years to fourteen years and upwards there are intervals during which it is necessary to shut off the blast and therefore stop the supply of gas when also the requirement for heating the blast and power for other purposes ceases.

At "casting" time and other intervals, the blast has to be shut off for periods varying from a few minutes to at times one-half hour, while exceptional circumstances require the production of gas to be suspended for even longer periods.

There are three methods of making up for these irregularities of gas supply, *i. e.*, storage of gas, the application of auxiliary gas producers, or allowing for one furnace in three or four to act as standby gas producer.

A compact and efficient apparatus for thoroughly purifying the whole of the gas leaving the furnace top, either working on a dry method without cooling, or using water for washing and cooling the gas to about atmospheric temperature, is a thing greatly to be desired. The cost of such a device would be considerably set off by the following gains; there would be less heating stove capacity required as there would be no necessity to put off any stove for thorough cleaning and the periodical "blowing off" of dust would not occur; boilers also would retain their efficiency and no extra or standby plant would be necessary; the costly stoppage of the furnace for a whole

[1]The writer adopted this term as a definition of minute particles carried by the gases, which pass off in the products of combustion from stoves and boilers, out of the stack, and which can only be arrested by very efficient filtration.

day, at intervals, would be saved; the handling and disposal of the dust would be concentrated and reduced. With clean gas the working of the stoves and boilers would not vary as at present, so that the output of the furnace would be increased, not only due to the higher efficiency of the auxiliary apparatus, but also to that resulting from the maintenance of regular working conditions. The ideal method of obtaining the highest possible efficiency from the combustion of the gas, would be by means of gas turbines which could be directly applied, in various powers, to the several points where power might be required, as the transmission of the gas to considerable distances would be effected with little, if any loss.

As a gas turbine has not yet been invented which will fulfill the above conditions, the next best method is to apply the gas to driving electric generators by gas engines and transmitting the power by cables to electric motors, with the accompanying losses, which are much less than those occurring by the transmisison of power by steam in pipes to engines situated at different points and the losses due to a steam engine having to stand at intervals, becoming cool and causing condensation.

The high thermal efficiency of the gas engine, as compared with steam plant being now well recognized, the application of this new power developer must be carefully considered. The published results as obtained at a large English iron works will form a useful basis in this connection.

It having been decided to make a trial of the application of the furnace gas to drive gas engines, the first step taken was to ascertain whether the type of engine proposed to be adopted was capable of running satisfactorily on blast furnace gas, and under test the results were satisfactory. As this was not the first engine of the type specially designed for the purpose this is not surprising.

However, in face of the numerous published reports of experiments in this direction, it would appear that if the engine could run satisfactorily on the gas from a certain furnace plant then the question of cleaning the gas would be no difficult matter. At this early date there were two distinct systems of gas purification before the public; one called by some the static method, and another in which centrifugal apparatus was applied; both systems had been under experiment at furnaces differing greatly in regard to the quantity of dust carried by the gas.

At some furnaces where the weight of dust carried by the gas was very small, and the point of application at a considerable distance from the furnaces, it was at first thought that purification was not necessary, but as time went on this was found to be a mistake. At English furnaces where the static method (Thwaite-Gardner patents) was applied with good results, the proportion of dust was much higher; this system included cooling, washing, and fine physical filtration. Probably owing to the question of first cost of such apparatus, the firm quoted, decided to provide a small fan to act as the purifier.

The engine was installed and the fan applied; later it was thought advisable to apply a second fan, working in series with the first one, and though the results were better, satisfaction was not obtained and as there happened to be a very considerable length of unusued gas tubing round the range of furnaces, the gas was passed through it. The effect of this was that cooling and condensation further assisted in the purification of the gas, but, later, a portion of this tubing was stacked with coke, forming a somewhat crude form of coke scrubber.

In this case it was found that it was necessary to thoroughly purify the gas and that the static method conditions had to be provided to assist the fans.

Most blast furnaces at present employ coke fuel, and a few anthracite, and the resulting gas is free from the tarry condensible matter which is so difficult to entirely remove, thus rendering the gas of excellent quality for driving gas engines, so that in any newly planned iron works, where there is an associated demand for cheap power the question arises whether it would not be advisable to apply the whole of the blast furnace gas to driving gas engines, and provide producers capable of gasifying common coal slack for heating the stoves. In this arrangement there would be no fouling of the checker work by incombustible matter, a great advantage, and during any stoppage of the furnaces for any cause, the producers could be charged with coke and the gas transferred to the power station. To provide gas during the ordinary periods of shutting off the blast, it would be necessary to employ some system of storage, such as an ordinary gas holder.

The periods of non-gas-making amount to from 10 to 22 per cent of the working time, and for intervals ranging from five minutes to 1¾ hours, and a gas holder of a capacity sufficient to provide gas for say two hours, costing about $265,000 would be suitable for a power plant of 39,000 horsepower and allowing for interest and depreciation, would incur an annual expenditure of less than $1 per horsepower, which would of course have to be added to the item of cost of cleaning. The thermal value of blast furnace gas ranges from about 100 B. T. U. to 120 B. T. U according to the purity of the iron ore, etc. but while different furnaces give gas of higher or lower power, as long as the composition of the materials charged are kept constant the quality of the gas changes less than in other producer practice. The combustible constituents of blast furnace gas from coke-fed furnaces consist of carbonic oxide, hydrogen, and marsh gas, and from volumetric analyses it is a simple matter to arrive at the thermal value by multiplying the percentage of each combustible, at 60 degrees Fahr. and 30 inches barometer by:

Carbonic oxide x 319 B. T. U.
Hydrogen x 282 B. T. U.
Marsh gas x 908 B. T. U.

on the lower basis of the products of combustion leaving the engine at above 212 degrees Fahr.

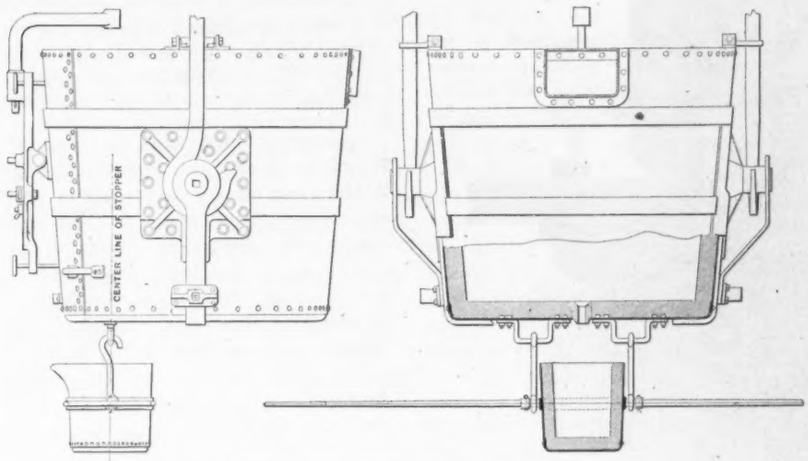
COMBINATION BULL AND POURING LADLE.

By W. M. Carr.

It frequently occurs that foundries fitted with open-hearth furnaces only receive inquiries for special composition castings not easily made, particularly where the quantities desired are smaller than the capacity of a single heat and when it would not be convenient to depart from the daily grade of steel produced. They are therefore compelled to forego such business, which is allotted to plants with crucible melting furnaces or small converters. Again, it is sometimes desired to pour very light castings from open-hearth steel. The bottom pouring ladle may be fitted with a nozzle much too large to accommodate a pouring gate proper for small castings. To open the stopper only slightly, and guard against a too large stream of metal, would give but a drizzle or dripping of steel through the nozzle, which would cause miss-runs and defective castings. The use of a pouring gate greatly in excess of the size of the casting would result in a low yield of saleable product.

Castings weighing ounces can be poured from open-hearth metal, but to make the practice economical they should be poured over the lip of a

ladle. In that way the size of the gates can be materially reduced and the flow of metal over the lip can be regulated to suit conditions. A ladle full of metal holding 10 to 20 tons can be best arranged for bottom pouring. It cannot



COMBINATION BULL AND POURING LADLE

be well tilted to deliver over the lip. The stream would be too large for small work and the operation would be too slow.

To suit departures from usual open-hearth methods to meet irregular requirements, the following plan has been evolved. Reference to the illustration herewith given will show a method recommended to add some flexibility to ordinary open-hearth practice. A small, or bull ladle can be suspended from the bottom of the regular size ladle below the nozzle, or it may be supported by some other means, permitting of ease in filling with metal, and thus in case of special compositions any treatment may be given before pouring into molds over the lip of the smaller ladle. The ladle may be detached and carried to another point, or it may be manipulated as it hangs from the larger one. The capacity may be 200 pounds or more. The ladle should be thoroughly preheated before use to prevent undue chilling. Special composition castings can be poured by this method only in cases where the element or elements to be introduced are to be in excess of any single element or combination of elements already present in the metal to be treated. The introduction of the element or elements can be brought about by the use of ferro-alloys such as ferro-chrome, ferro-manganese, ferro-vanadium, ferro-phosphorus, carburite, C. P. manganese, etc. The predetermined portions of the alloys should in every case be preheated to assist solution and to offset any undesirable chilling. The temperature of the mixture can be raised to proper casting condition by inserting in the ladle of special steel a thermit cartridge. In addition to the elevation of temperature there would be set up an agitation which would tend to thoroughly incorporate the dose or doses with the molten metal.

Thermit can also be successfully used in a similar manner in connection with the secondary ladle plan and produce a temperature sufficiently high to permit lip pouring of the lightest possible sections from regular open-hearth steel. In some open-hearth steel foundries the demand for special composition and very small castings is met by using a coke or coal fired furnace in which empty graphite crucibles are thoroughly heated. They are withdrawn at the proper time and immediately filled with metal delivered through the nozzle of a ladle holding open-hearth steel. The metal thus transferred to a hot crucible can be given any desired treatment, as described in the secondary ladle method, and then be lip poured into molds.

THE RYERSON FRICTION SAW.

The accompanying illustrations show the Ryerson friction saw sold by Joseph T. Ryerson & Son, Chicago. Cutting steel shapes by high speed friction discs is an extremely rapid and convenient method and is used in large steel mills and in the principal structural shops of the country where large tonnages are handled. In the past, high speed friction saws have been heavy and expensive machines, requiring motors of great power and heavy foundations, making them costly machines to install in the average size structural shop.

The experience of Joseph T. Ryerson & Son in installing structural shop equipment, coupled with a knowledge of their own shop conditions, led them to develop the present saw, which is compact, self-contained and low in first cost and expense of operation. Experiments have been carefully carried out along this line for a number of years and the machine now offered is the result of this experimenting and meets the usual demand of the structural steel user, and

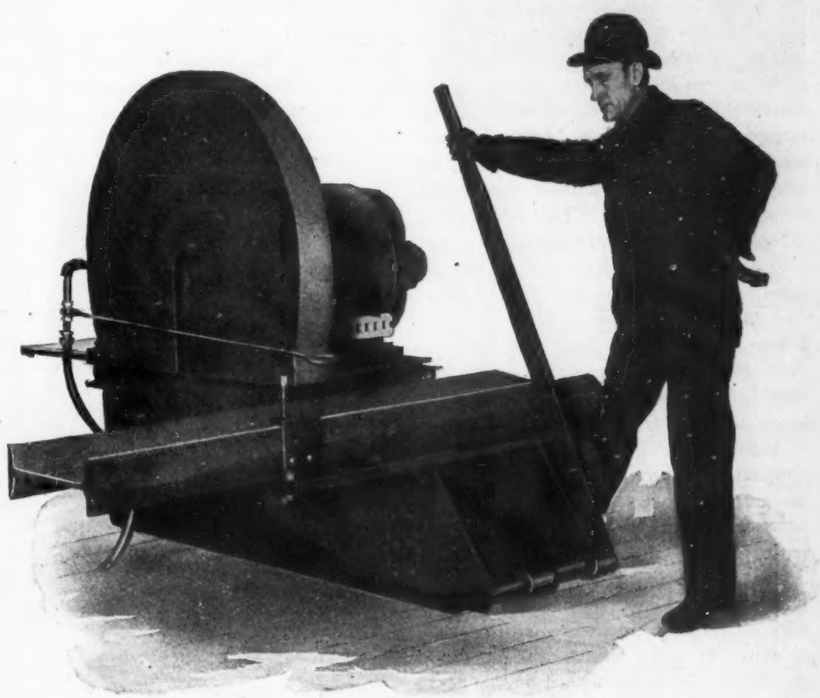


FIG. 1.—THE RYERSON FRICTION SAW IN OPERATION.

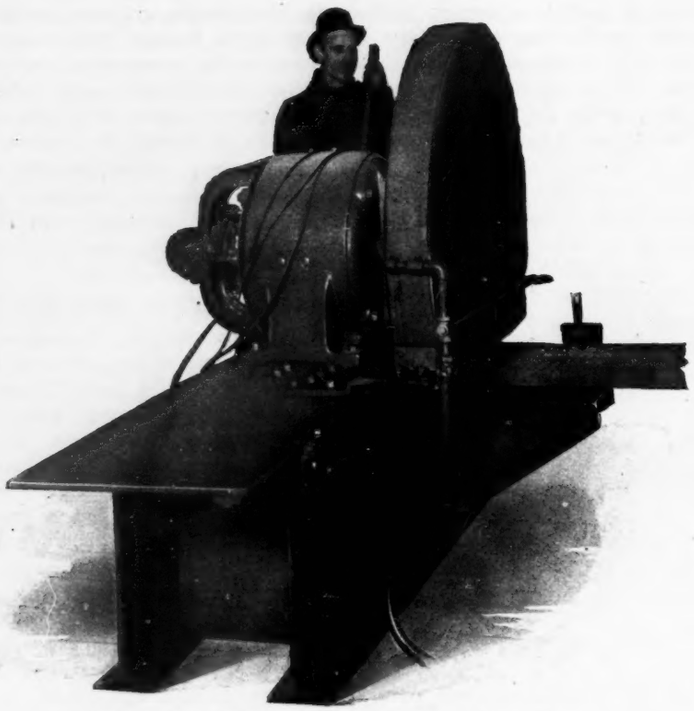


FIG. 2.—THE RYERSON FRICTION SAW, BACK VIEW.

has accomplished work beyond the best expectations of the builders.

The saw illustrated has a capacity to cut a 15-inch I-beam in 28 seconds and smaller sections in proportion. The machine is entirely self-contained and is driven direct by the motor without the interposition of any belts, gears or other mechanism. All parts are designed as simply as possible without sacrificing strength or efficiency. The floor space occupied by the machine complete is approximately 7 x 4 feet and no foundation is required other than a good floor. The machine is driven by a 25-horsepower motor, which has the regular overload capacity. It is of special design throughout and is banded extra heavy to resist the centrifugal force, due to high speed. The motor and starting rheostat are furnished as part of the machine and are available for direct current or for 60-cycle, 3-phase alternating current in all standard voltages.

The saw discs are inexpensive and one is furnished with each machine. The only sharpening required is to occasionally re-nick them, an operation which can be accomplished in about 15 minutes with a special chisel furnished with each machine. The saw discs are 40 inches diameter and are made of ordinary flange steel plate. It is held in place by steel collars which extend to within 8½ inches of the edge. The blade moves in a steel hood, around the inside pheriphery of which is a small perforated pipe connected to any available water supply. A valve controls the supply, so that water is used only during the instant of cutting.

A valuable feature of the tool is the arrangement of the carriage, by means of which small beams or shapes can be cut on a bevel or mitered at any desired angle. The saw is not constructed or intended for cutting large square or round sections, and it is not recommended by the makers for such work. On rails or other special sections, however, it will cut very rapidly. It is unnecessary to clamp the work when straight cutting is done, and there are no adjustments or feeds of any sort to be watched or regulated. The saw will cut a 3-inch channel and immediately afterwards a 15-inch beam without change or adjustment.

A number of these saws have been installed by steel car builders, bridge builders and other concerns whose work necessitates their cutting to lengths a considerable quantity of structural material. It has been found to do very efficient coping, blocking out, beveling and making long skew cuts. Machines have recently been installed in the plants of the St. Louis Car Co., the Southwestern Bridge Co., Joplin, Mo., and the J. G. Brill Co., Philadelphia.

Will Install Dry Blast.—The Vilter Mfg. Co., Milwaukee, has received from the Illinois Steel Co. an order for a refrigerating plant with a capacity equal to the melting of 1,100 tons of ice per day. The plant, which is to cost $115,000, is to be installed at South Chicago, to dry air for blast furnaces. It will include four cross compound condensing Corliss engines, each driving two double acting ammonia compressors.

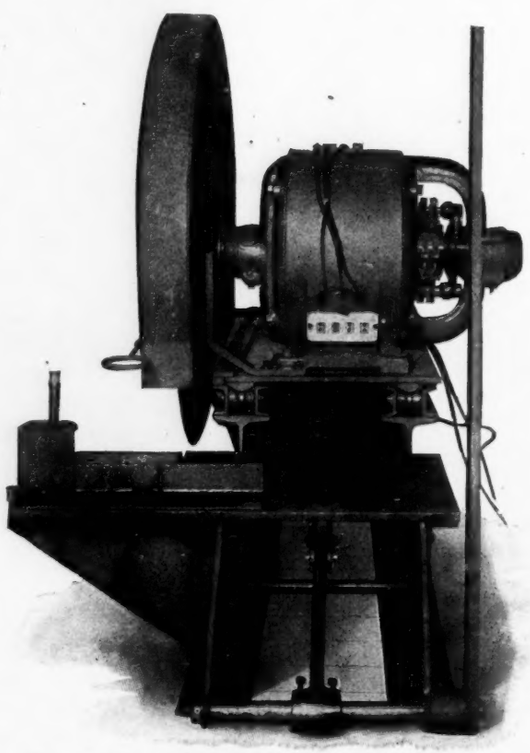


FIG. 3.—THE RYERSON FRICTION SAW, FRONT VIEW.

A NEW LINE OF LIFTING MAGNETS.

The number of commercial magnets actually in use in the United States today is relatively small, if consideration is taken of the great number of plants in this country which could use magnets for handling various forms of raw and finished metals entering into the products of their manufacture. This condition is doubtless largely due to the fact that the advantages of lifting magnets are not generally realized, and it is doubtful if any concern that has given the lifting magnet a fair trial has returned to the old method of handling iron and steel.

Wherever pig iron, metal plates, tubes, rails, beams, scrap or heavy iron and steel castings are to be handled, lifting magnets can be advantageously employed. The saving in time in adjusting hoisting tackle to the object to be raised is of itself oftentimes sufficient to justify the installation of a lifting magnet, while in the case of pig iron, plates, rails and scrap, the practical advantages of lifting magnets are still more obvious, owing to the large number of pieces that can be handled at a single lift and to the fact that the object to be handled need not be piled beforehand. A further advantage of lifting magnets is found in the fact that metal too hot to be handled by men can be taken care of as easily as cold metal by the magnet.

The design of a lifting magnet is varied to suit the metal, which it is required to handle. The construction of magnets for handling plates, or material of a similar nature, affording an opportunity to secure an intimate magnetic contact is a comparatively simple problem. Calculations as to the lifting capacity of such a magnet can be made with considerable accuracy as the total flux is easily figured. Magnets for handling billets, etc., laid in piles are, as a rule, operated in pairs, as such material usually comes in lengths up to 30 feet. They are most conveniently handled by two magnets placed 8 to 20 feet apart on a balancing bar to which the crane hook is attached. Magnets for handling pig iron, scrap, etc., present considerable difficulty in design, as they are expected to handle a wide range of material, varying in form, in magnetic permeability, and often encountered in irregular piles. This increases the reluctance of the magnetic circuit, and consequently, the total flux varies with each lift. This makes an accurate calculation of the flux almost impossible and renders experience essential to the production of a thoroughly good lifting magnet.

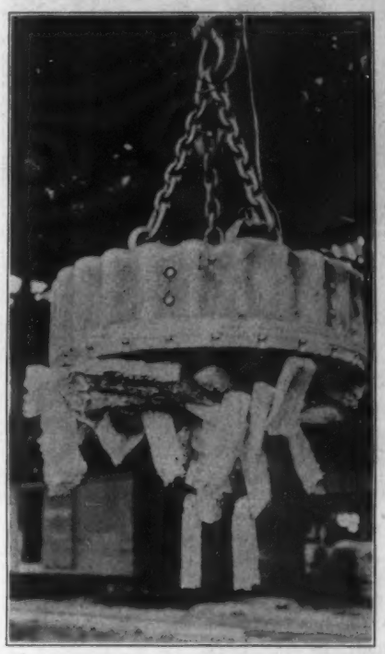


FIG. 2—THE LIFTING MAGNET AND 32 PIGS—WEIGHT 2,080 POUNDS.

FIG. 1.—THE CUTLER-HAMMER LIFLING MAGNET.

The most efficient magnet is usually considered the one which lifts in proportion to its own weight, the greatest possible amount of material. The weight of the magnet itself must be considered as dead weight, and the aim of the manufacturer is to construct a magnet that will combine the minimum of weight with the maximum of lifting capacity. Other things being equal, the larger the magnet the greater is its lifting capacity. While it is true that the weight of the magnet itself must be considered as dead weight, it may sometimes happen that the heavier magnet may actually be the more economical of the two. The material handled by lifting magnets is usually hoisted and then conveyed. The power

required to hoist is directly proportional to the load on the crane hook, but this does not hold true in regard to conveyance, as the weight of the crane forms a large proportion of the total load to

FIG. 3.—MAGNET LIFTING 5,500-POUND SKULL.

be moved. If a larger dead weight, by lifting more, enables the number of trips made by the crane to be reduced, a marked saving may be shown, both in time and current consumption.

The Cutler-Hammer Clutch Co., of Milwaukee, has recently placed on the market the electro-hoisting magnet shown herewith. This magnet contains features which, it is claimed, mark a distinct advance in the industry. A severe test undergone by one of these magnets comprised the unloading of a steel gondola car containing 109,350 pounds of sand cast pigs in two hours and five minutes. A 52-inch magnet was used and the work was accomplished by one man, the crane operator. The average lift of the Cutler-Hammer magnet was 785 pounds. In tests conducted with a similar magnet at the Donora works of the Carnegie Steel Co., 32 sand cast manganese pigs averaging 65 pounds each were lifted from the ground by this magnet, a total lift of 2,080 pounds. Under fair average conditions, a 50-inch magnet should handle from 1,000 to 2,000 pounds of material at a time, but this may fall to 500 pounds under adverse conditions or rise to 10,000 or even 20,000 pounds under extremely favorable conditions.

In the design of the Cutler-Hammer magnet the magnetic attraction of the inner pole has purposely been made stronger than that of the outer pole, the practical effect of this concentration of magnetic flux being that in handling pig iron or similar material the various pieces constituting the load are released by the outer pole first, when the current is switched off, and are drawn toward the center of the magnet by the superior attraction of the inner pole, thus enabling the operator to deposit the load within an area scarcely exceeding in radius the diameter of the magnet itself.

The following data were obtained during the test of the 52-inch magnet at the

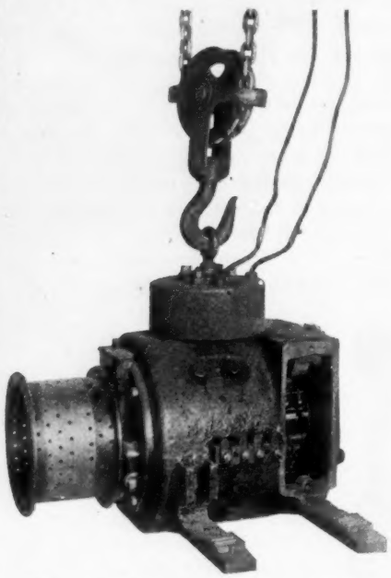


FIG. 4.—10-INCH, 75-POUND MAGNET; LIFTING GENERATOR WEIGHING 800 POUNDS.

plant of the Youngstown Sheet & Tube Works above mentioned:

Total weight of pig iron unloaded	109,350 lbs.
Weight of average lift	739 lbs.
Number of trips required to unload gondola	139
Length of time current was on magnet	75 minutes
Time current was off magnet	50 minutes
Total time	125 minutes
Current required	30 amperes
Voltage	220

This gives a total power consumption of 8.25 kilowatt-hours, which, at a rate of three cents per kilowatt-hour, gives a total cost of current of less than 25 cents for energizing the magnet during the period required to unload 54 tons of pig iron.

This magnet possesses features which tend to give a high efficiency due to good proportioning of the magnetic circuit, insuring a deep penetration of the flux into the material to be lifted and largely to the attention given to the important question of heat radiation. The frame of the magnet is corrugated, which increases the surface available for radiation and, at the same time, forms niches that protect from injury the heads of the through bolts which fasten the removable pole piece, discussed later, to the magnet frame. Heat radiation is further aided by casting the magnet frame with a central aperture, through which air may freely circulate.

A point worthy of notice in connection with this magnet is the auxiliary pole piece. Lifting magnets of large size, designed for use with pig iron, scrap, etc., are made concave on the under side, because this form is best adapted to handling large numbers of irregularly shaped pieces of metal at a small lift. When, however, the load consists of one or two large objects with plane surfaces, this cavity becomes objectionable, as an air gap then intervenes between the inner pole and the object lifted. The central aperture in the magnet makes it possible to convert it in a few moments from a concave faced magnet into one adapted to handling large masses of metal with plane surfaces. This is accomplished by inserting in the central aperture an auxiliary pole piece proportioned to extend the inner pole downward to the level of the outer pole, eliminating the air gap and insuring intimate contact of both poles with the object to be lifted. This feature is illustrated in the line drawings, Figs. 6, 7 and 8.

Another feature worthy of mention is the removable pole shoe bolted to the

FIG. 5.—LIFTING MAGNET HANDLING STEEL STAMPINGS.

under side of the magnet by through bolts. This part of the magnet is subjected to the greatest wear, and in the present magnet may be easily renewed, reducing to a minimum the expense for repairs.

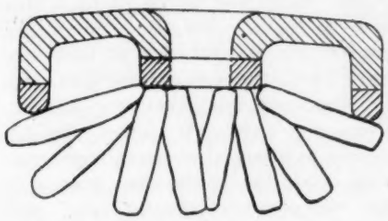


FIG. 6.—MAGNET FOR LIFTING PIG IRON.

FIG. 7.—MAGNET FOR PIG IRON LIFTING A PLANE SURFACE PIECE.

FIG. 8.—MAGNET FITTED WITH AUXILIARY POLE PIECE FOR PLANE SURFACES.

THE CHEMIST IN ENGINEERING.

In a paper on the above line presented at the recent meeting in Cleveland of the Society for the Promotion of Engineering Education, C. F. Mabery, of the Case School of Applied Science, stated that all operations in applied science have come to involve construction and the design and use of machinery to such extent that it is scarcely possible for a graduate of a technical school to occupy a position in which he may not be called on to devise and operate the machinery of a manufacturing process. In chemistry, the manipulation of the machinery in which a process is applied has become of as much importance as the chemical changes themselves.

Formerly the term chemist was understood to apply to the individual who devoted his time to chemical analyses in the laboratory with little attention to the manufacturing operation. It is still of as much importance that manufacturing be controlled by analysis, with reference to the composition of raw materials and finished products, and the control of methods. The laboratory work is even of greater importance than formerly, and it demands the service of a number of trained analysts. But the individual who aspires to advancement in his profession will remain in the laboratory in routine work only long enough to become familiar with this end of the business, provided he has the mechanical ability and training to permit him to take charge of processes.

To meet the demand for men trained in mechanics as well as in chemistry the technical schools, for some years, have offered courses in what is termed chemical engineering which have included training in elementary chemistry and analysis, with some attention to industrial chemistry, but with additional time allowed for the extra studies in mechanics. In other words some of the chemisty has been replaced by engineering studies.

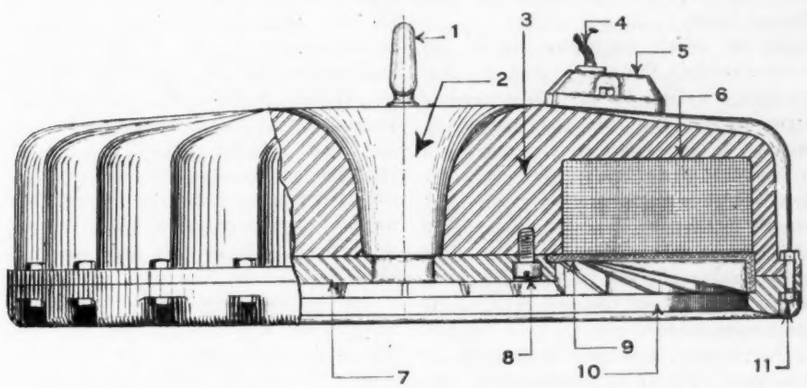


FIG. 9.—INTERNAL CONSTRUCTION OF CUTLER-HAMMER LIFTING MAGNET.

1.—Eye Bolt. 2.—Central flue permitting heat radiation through body of magnet. 3.—Magnet Body. 4.—Cable. 5.—Nominal Box. 6.—Coil. 7.—Inner Pole Shoe. 8.—Pole Shoe retaining screw. 9.—Coil Shield. 10.—Outer (removable) Pole Shoe. 11.—One of the through bolts fastening removable pole shoe to magnet body.

BUYS TOOL PLANT.

The Cleveland Twist Drill Co., Cleveland, has purchased the business, stock, raw material, patents, good will of the Three Rivers Tool Co., Three Rivers, Mich. The machinery will be moved to and immediately installed at the works of the Cleveland Twist Drill Co., Cleveland, and the manufacturing resumed with as little interruption as possible. With the assistance of J. G. Matthews, former manager of the Three Rivers plant, who will have charge of the "Peerless" department, the Cleveland Twist Drill Co. hopes to begin finishing up old orders very soon, and to be prepared for new work. Hereafter the reamer will be known as the "Peerless."

In these reamers the blades are of high speed steel brazed into a body of tough steel, with the result that the parts are united into one solid piece. The body of the reamers is of low carbon steel, especially selected for elasticity and shock-resisting qualities. It has been stated by many persons who have given the subject attention that a combination of high speed blades and an elastic body makes an ideal tool, giving long life and increased efficiency.

Two distinct types of "Peerless" reamers will be made—both intended for hand and machine work; the one is ordinarily termed solid, the other expansion. The process for brazing the blades is the same in each. The expansion type is expanded by means of a plug threaded at the point with a taper seat near the top. The increase of diameter takes place at the extreme point; or in other words the part where the cutting is done.

All business communications should hereafter be directed to the Cleveland Twist Drill Co., Cleveland.

Sheet Mills Sold.—The property of the United Sheet & Tin Plate Co., comprising plants at Marietta, Newcomerstown, Byesville and Newark, O., and coal lands near Cambridge, O., has been sold at bankruptcy sale to Strauss & Co., Philadelphia, for $49,500. The purchasers represented Philadelphia capitalists. The property is assessed at $70,500, and this was the third time it had been offered for sale.

The Pacific Engineering Co. has completed the freight conveyor from the dock across Railroad avenue to the warehouse of the Virginia Street Dock & Warehouse Co. at Seattle, Wash. This is the largest conveyor on the coast, and has a span of 250 feet 25 feet above the railroad tracks. It will be electrically driven and cargoes can, by its means, be transferred directly from the ships to the warehouses. It is expected that the conveyor will reduce the truckage bills 80 per cent.

THE SCHILD GAS REVERSING VALVE.

The Schild gas reversing valve for the Siemens furnace closely approaches, it is claimed, the perfection

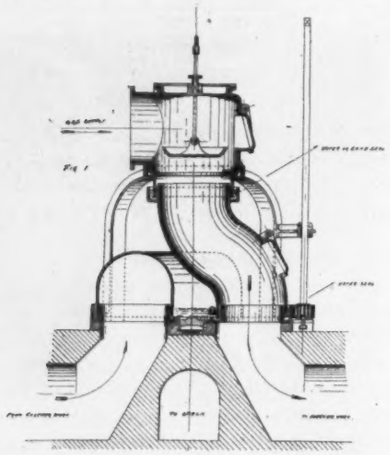


FIG. 1.—SECTIONAL ELEVATION OF THE VALVE.

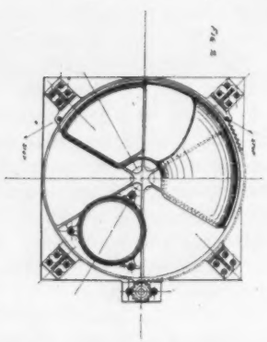


FIG. 2.—GENERAL PLAN.

long sought for a valve of this kind.

A perfect valve, of course, should not leak, not only in its normal position, but should not throw gas into the chimney during reversal. Neither

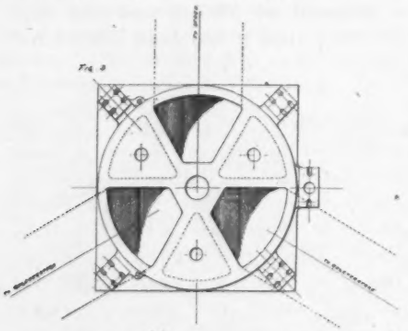


FIG. 3.—BED PLATE ON WHICH VALVE IS MOUNTED.

should it warp, crack, or stick at any time. Any open hearth man can testify to the loss of heat on account of the gas valve becoming warped so that it cannot be reversed, or becoming so sticky with soot and tar that it takes a crowbar and as many men as can get around it to throw the valve over.

In the Schild valve, it is claimed that there is no leakage possible in its normal position, and that during the reversal period it automatically and absolutely shuts off the gas from the chimney flue. The tar and soot cannot prevent the smooth operation, as none of the wearing or contact surfaces are exposed to the gas. It cannot warp and cause leakage, as in no case is the structure exposed to the heat of the gas on both sides. One side is always exposed to the air.

Even should any part of the hoods warp it will make no difference in the operation. The bed plate and valve plate are kept cool by the water and cannot warp.

All the joints are water sealed and cannot leak. The gas saved in preventing small leaks is a considerable item in the long run, and the saving in coal is about 300 tons per year in a 24 inch valve. The surfaces of water exposed to the gas, however, are very small, so that no steam is taken up in the gas. A large plant which installed Schild valves for all its furnaces made a saving of about 20 per cent of its coal consumption.

Fig. 1 gives a sectional elevation of the valve, Fig. 2 a general plan, and Fig. 3 shows the stationary bedplate on which the valve is mounted. This bedplate is circular and has three equal openings with their centers 120 degrees apart, two of which communicate with the two gas flues leading to the regenerators on both ends of the furnace, and the third with the waste flue leading to the smokestack. Concentrically on this bedplate is placed a pan with three openings which correspond with the openings in the bedplate. Two of these openings are covered by a connecting hood, and the third one by a curved pipe which forms the gas conductor. The upper end of this gas conductor has its center vertically over the center of the bedplate and is provided with a deep rim filled with sand or water, into which extends the lower part of the gas supply box. The latter is supported from the bedplate by three or four legs. Both gas box and gas conductor are provided with doors for occasional cleaning.

To the circumference of the pan is secured a segment gear rim by means of which the pan may be revolved by a hand wheel and pinion or by a rack and hydraulic cylinder. Stops are provided in the bedplate to limit this movement. By turning the pan with its hood and gas conductor 120 degrees one way or the other, the gas supply is brought in direct connection with either one of the flues leading to the regenerators, at the same time connecting the other flue with the smokestack. The rotating pan is also filled with water, which not only forms an efficient seal around the hood and the gas conductor, but also keeps the bedplate cool and prevents warping and cracking. During the time required for reversing and until this operation is fully completed, the gas is absolutely shut off from the stack, so that at no time can any gas escape unburned to the stack.

During the five or six years the Schild reciprocating reversing valves have been used in the steel plant of the Cia Fundidora de Fierro y Acero de Monterey, Mexico, hardly a dollar has been spent on them for repairs, they have never caused any delay on account of sticking or refusal to work, and the consumption of gas coal showed the lowest records ever obtained. The 32 Schild valves recently ordered by the Carnegie Steel Co. for its Duquesne plant will be shortly in operation.

The Amsler Engineering Co., Pittsburg, is the sole manufacturer and seller of the Schild valve.

RECEIVER APPOINTED.

Judge Thompson of the United States district court has appointed H. Black, of Cincinnati, as receiver of the Troy Iron & Foundry Co., Troy, O. The appointment was made on application of N. H. Ashley and E. R. Carter, holding interest in the business, who charged mismanagement in the accounts.

Members of the Technical Publicity Association and a number of guests enjoyed a pleasant outing at Spring Lake, N. J., August 31. The affair was arranged by a committee headed by H. H. Kress, of the A. S. Cameron Steam Pump Works, New York.

The Union Iron Works, Spokane, Wash., has recently installed a Pridmore molding machine, the first machine to be placed in operation in the city; the company is also installing a compressed air system, pneumatic riddles, chipping hammers, hoists, etc., in its foundry.

GOVERNMENT PROBE

Into Quebec Bridge Disaster Under Way—Testimony at Inquest.

(Special Correspondence.)

Toronto, Sept. 7.—The official investigation of the Quebec bridge disaster by a special commission appointed by the Canadian government will begin on Monday, Sept. 9. The members of the commission are Henry Holgate, C. E., Montreal; Prof. J. G. G. Kerry, late of McGill University, but now of Toronto; and Dr. John Galbraith, Toronto University. The opening of the inquiry was delayed to allow the members of the commission and the experts who will be called on to testify to acquaint themselves with the conditions of the bridge. At the coroner's inquest, held at Quebec this week, evidence was given by Alexander Ouimet, who was engaged on the work, to the effect that last May he saw a crack ¾ of an inch wide and 20 inches long in one of the plates of the outer pier. He did not inform the officials, but pointed out the defect to some of his fellow workmen. Raoul La France, another workman, corroborated Ouimet's statement, and said he did not report the matter because he believed the inspectors knew it. Norman McLure, C. E., government inspector, said he had inspected the plate on different occasions, but had not noticed a crack. The plate was bent, but it was not a fault, being crimped when it left the shop. An inexperienced eye might take the crimp for a crack, he stated. E. R. Kinlock, one of the Quebec Bridge Co.'s inspectors, also said that the plate in question was crimped, but was positive there was no crack.

E. A. Hoare, chief engineer for the Quebec Bridge Co. testified that on Tuesday, Aug. 27, Inspector McLure reported verbally that at No. 9 lower chord on the west side of and inside the main pier there was a deflection inward; it showed just a slight curve. He went over the whole construction with the other engineers on the next day and Mr. McLure went to New York to consult Mr. Cooper on the matter. Mr. Kinlock, who first discovered the curvature in the chord, said that when it was placed in position it was in perfect condition and in all respects like other chords with the exception of a repair in one end made in the bridge yard. He thought the curvature a serious one. The inquest was adjourned pending the government investigation.

The Canadian National Association of Builders was organized Sept. 2 at a meeting held in the King Edward Hotel, Toronto, which was attended by upwards of 300 builders and contractors. The following officers were elected: President, J. O. Deslauriers, Montreal; vice presidents, J. W. Morley, Winnipeg; C. W. Batt, Toronto; R. D. Clarke, Montreal; general secretary, J. Herbert Lauer, Montreal; directors, T. Self, Toronto; B. H. Richardson and W. H. Yates, Hamilton; Wm. Tybler, London, Ont.; T. W. Murray, Winnipeg, and D. W. Ross, Montreal.

The International Snow Plow Mfg. Co. has decided to establish a plant at Fort William, Ont., in consideration of the city having agreed to provide it with a free site and exempt it from municipal taxation for 10 years. In addition to an improved class of snow plows, its output will consist of all-steel box and flat cars. The company is capitalized at $250,000, a portion of which has been subscribed. Major Robert Larneour is manager and promoter. The cost of the plant is estimated at about $100,000.

The Dominion Smoke Consuming Co., Ltd., is in process of organization with a capitalization of $50,000 to manufacture smoke consumers in Toronto, having purchased the Canadian patents from the National Smoke Consuming Co., of Buffalo, N. Y. The officials are: V. R. Hand, Medina, N. Y., president; E. C. Tanner, Bradford, Pa., first vice president; A. R. Whyte, secretary-treasurer, and T. H. White, manager.

Henry E. Pearce, Wm. H. Smith, Arthur Gate and others have been granted a charter as the Ideal Foundry Co., Ltd., with $100,000 capital and head office at Toronto.

The Union Brass Goods Co., Ltd., Toronto, has been chartered with an authorized capital of $150,000, the provisional directors being Morley P. Vandervoort, Francis J. Stanley, and W. A. W. Smiley.

Lawrence L. Anthes, Herbert C. Sparling, Harold Wilson and others have secured incorporation as the Anthes Foundry Co., Ltd., Toronto, with $100,000 capital.

The Simplex Gas Co., Ltd., has been incorporated with Henry H. York, Walter E. Colwell and Harry H. Colwell, provisional directors, to manufacture the Simplex gas machine at Toronto with $40,000 capital.

The Dickson Bridge Works Co., Ltd., of Campbellford, Ont., capital $40,000, has been incorporated by James H. Caskey, Wm. C. Mann, Frederick C. Downey and others.

FAVORABLE PROGRESS

Made by National Metal Trades Association in Combating Strikes.

The strikes in the various shops of members of the National Metal Trades Association are in the condition outlined below according to Commissioner Wuest, who is much gratified at the progress that has been made.

Pittsburg, Pa.—The struck members of the Pittsburg branch of the N. M. T. A. are in better shape than at any time since the strike was called.

Franklin, Pa.—The Colburn Machine Co. and the Chicago Pneumatic Tool Co. have advised the commissioner's office that they no longer require the services of one of the association's special representatives.

Fitchburg, Mass.—The strike at this point is practically over and the output of the shops is nearly normal.

Scranton, Pa.—The Scranton Drop Forge Co., whose drop forgers and die sinkers went on strike the latter part of June, advises that the splendid work of the association has exceeded its expectations and it has been surprised at the work that has been done in its behalf.

Springfield, Mass.—The administrative council of the association has authorized the combating of the strike of the drop forgers and die sinkers in the shop of the Page-Storms Drop Forging Co. The special representative detailed to look after this strike advises the commissioner that it should be of short duration.

Chicago.—The strike which was called by the brass polishers and buffers of the Theo. Koch Co. has passed into history, the company claiming its output is greater than before the strike was called.

Indianapolis.—The Keyless Lock Co. expresses satisfaction over the fact that it had a strike, as the output is better with a new complement of men than it was before.

A meeting of the executive committee of the N. M. T. A. has been called for Sept. 10 at the Engineers' Club in New York. The committee is composed of C. Bermingham, of the Canadian Locomotive Works, Kingston, Ont., Howard P. Eells, of the Bucyrus Mfg. Co., Milwaukee, Paul Kendig, of the Seneca Falls Mfg. Co., Seneca Falls, N. Y., M. H. Barker, of the American Tool & Machine Co., Boston, Mass, and Robert Wuest, the commissioner.

LARGEST BUSINESS

IN HISTORY OF REPUBLIC IRON & STEEL CO.,

Transacted in Fiscal Year Ending June 30.—Preferred Dividends in Arrears Paid in Full.—Large Surplus.

Both the volume and the tonnage of business transacted by the Republic Iron & Steel Co. for the year ending June 30, 1907, were the largest in the history of the company. The annual report of the company just issued discloses a period of very prosperous operation.

The income account and statement of surplus for the year ending June 30, 1907, is as follows:

Net earnings from operations after deducting charges for maintenance and repairs of plants approximating $1,100,000.		$4,917,659 73
Interest and dividends received on investments, less interest paid...		110,082 11
Total profits for the year.....		$5,027,741 84
Less—Expenditures on reconstruction and improvement of plants, written off in lieu of depreciation	$682,931 51	
Provision for the exhaustion of minerals	151,402 42	834,333 93
Net profits for the year		$4,193,407 91
Deduct:—		
Interest on first mortgage 5 per cent bonds	$431,250 01	
Interest on collateral trust 5 per cent notes	32,912 50	
Dividends on preferred stock 7 per cent for the year ending June 30, 1907	1,429,183 00	1,893,345 51
Surplus for the year		$2,300,062 40
Add—Surplus at July 1, 1906	$3,133,283 73	
From which there has been appropriated for arrears of 8 per cent dividend on prefered stock, making the dividend fully paid up to date.....	1,633,352 00	1,499,931 73
Net surplus carried to balance sheet		$3,799,994 13

At the close of the fiscal year, the actual inventories taken of all products show a total valuation of $4,278,143.05, against $3,693,404.95, June 30, 1905, and $3,852,342.81, June 30, 1905. Most items listed in the inventory show a reduction in totals, as compared with the previous year, except in iron ore and pig iron. Increase in these items is due to larger operations and increased blast furnace requirements.

In the gross volume of business transacted, the past three years are compared as follows:

July 1, 1906, to June 30, 1907....	$31,227,423.56
July 1, 1905, to June 30, 1906....	26,196,438.85
July 1, 1904, to June 30, 1905....	22,188,842.79

The comparative statement of earnings and the disposition of income for the past three years is shown in appended table:

John A. Topping, president, in commenting upon the company's business in the year says in part, as follows:

The changes to your manufacturing properties during the year ending June 30, 1907, have consisted chiefly in the cost of construction of your Haselton No. 3 furnace, the enlargement of your Haselton furnace yards, cost of construction of coke ovens and tenement houses at your Republic Coke Works, Republic, Pa., the improvements to your Pioneer Furnaces, south, the installation at these furnaces of Euhling casting machine, additional tenement houses at Thomas Quarries, and other general expenditures on capital account, more particularly referred to in other parts of this report.

The changes in your land account were the acquisition of the Monica, Mariska and Onondaga Iron properties, lands of the Enterprise Boiler Co., Youngstown, O., for mill purposes, sale of mill lands and other disconnected properties not necessary to our present operations.

New Construction and Property Additions.

The general policy of your company has, for a number of years, recognized the necessity of strengthening your facilities for manufacturing, and since the date of the company's organization, May 3, 1899, very substantial additions to your holdings of both coal and iron ore lands have been made and large sums have been expended for improvements or new construction at your manufacturing plants. Your executive committee is of the opinion that the policy of diversifying and extending your manufacturing operations and the development of your mineral holdings, should be continued on as generous a scale as your surplus earnings, working capital necessities or finances permit.

Rolling Mills and Factories.

The policy of concentration and improvement heretofore inaugurated has been vigorously continued during the past year. Your Springfield mill, heretofore reported on the inactive list, was dismantled and the property was entirely disposed of during the year. Your Mitchell-Tranter Works, also on the inactive list, has been partially dismantled and disposition of this property has also been authorized by your executive committee.

While no additional rolling mills have been constructed during the year, yet extensive improvements have been made at all points. These changes consist chiefly of improved appliances for handling raw materials, the rearrangement of equipment to minimize the necessity for rehandling products, displacement of old wooden buildings by modern steel construction, additional power by the installation of modern engines, boilers and other equipment. The effect of these changes has been to increase your tonnage and decrease your costs.

In your more highly finished factory products, extensions have been made to your Chicago plant by the construction of bolt and nut works. Substantial additions were also made to your railway spike department at Youngstown, and general extensions to your Muncie bolt and nut works, which included removal of your turnbuckle factory from Brazil to Muncie, which involved the reconstruction of this factory on a more modern basis and with increased capacity. Substantial advantages have already accrued from this change, as a result of concentrated management and from other economies effected. The general influence of the changes made during the year has been concentration of production at the most favorable locations in respect to markets, fuel and raw materials, and to increase production at most advantageous points.

Comparative figures are submitted, but the production of semi-finished products used for conversion are excluded:

ANNUAL PRODUCTION—FINISHED AND SEMI-FINISHED PRODUCTS.

Year ending June 30, 1907.....	804,360 tons
Year ending June 30, 1906.....	742,435 tons
Year ending June 30, 1905.....	672,012 tons

Blast Furnaces.

The increased blast furnace capacity recommended by your executive committeee was attained by the completion and blowing in of your Haselton Furnaces Nos. 2 and 3, which were added to your producing list in October, 1906, and January, 1907, respectively. Extensive improvements have been made to your Pioneer group of furnaces, south, and to your Atlantic Furnace, north, and all other northern stacks have been relined and thoroughly repaired during the year, with the exception of Hannah furnace, which after four years of activity is now out of blast for relining and repairs. This stack, however, will be again in the producing list within thirty days.

Aside from the increased capacity attained by new construction, your old furnaces, due to renewals and improvements, are showing increased output and increased economy of operation. So far as pig iron is concerned, your property is now entirely self-contained as to its supply of steel-making irons, and is in a position to market a substantial tonnage of basic, foundry and mill iron.

PIG IRON PRODUCTION.

Year ending June 30, 1907..	614,954 gross tons
Year ending June 30, 1906..	493,344 gross tons
Year ending June 30, 1905..	442,640 gross tons

Steel Works.

The benefits anticipated from your steel works improvements, referred to in your last annual report, have been fully realized, both as to increases in tonnage and increased economy. The hot metal railway and mixer equipment were placed in commission in October, 1906. Further minor improvements in the way of modern electric cranes, improved tables, additional steam and electric power, have been installed, which, together with some rearrangement of the equipment, have placed your property on a stronger operating basis.

Comparative figures of production for the past three years are submitted.

Year ending	Ingots	Rails, sheet bars, Slabs and billets
June 30, 1907	546.645 tons	488,251 tons
June 30, 1906	511,768 tons	454,859 tons
June 30, 1905	448,331 tons	405,177 tons

Iron Ore Mines.

Active operations have been conducted in your northern iron ore lands, both as to explorations and development, and some additional properties have been acquired by purchase. The most notable extension to your mineral reserves North has been secured at a nominal drilling

Statement of Earnings and Expenditures.

Period.	Gross Profits.	Depreciation and Charges.	Net Profits.	Regular Dividends.	Amount Carried to Surplus.	Amount Specially written out of Surplus.	Balance Surplus Account.
July 1, 1904 to June 30, 1905.....	$2,508,068 28	$1,134,460 73	$1,373,607 55		$1,373,607 55		$4,010,329 65
July 1, 1905 to June 30, 1906.....	4,750,476 02	2,011,914 80	2,738,561 22	$1,429,183 00	1,309,378 22	$2,186,424 14	3,133,283 73
July 1, 1906 to June 30, 1907.....	6,127,741 84	2,398,496 44	3,729,245 40	1,429,183 00	2,300,062 40	1,633,352 00	3,799,994 13

cost, by redrilling lands heretofore partially explored without result. Over 7,000,000 tons, largely Bessemer in quality, has been added from this source and further drilling is confidently expected to increase this tonnage.

In your southern district, new mines are being developed in Red Mountain territory and active test-pitting has been prosecuted with the result of extending the life of your Brown ore operations, and in addition to this development of old properties, a most valuable addition—both in respect to quantity and quality—has been made to your mineral holdings south, by a joint purchase with the Tennessee Coal, Iron & Railroad Co., on a long time payment basis and at a most favorable price, of the property known as the Potter land. The ore in this property is of the highest grade of Southern red ore, and running high in lime, is of a self-fluxing character. This feature adds great strength to your southern furnace operations for the reason that heretofore your furnaces south have been at some disadvantage on account of their necessity of working a higher silicon mixture than will be necessary hereafter when the new mines on the Potter land are placed on the producing list, which it is anticipated will occur on or before Jan. 1, 1908. The tonnage acquired through the Potter interest is estimated at 40,000,000 tons.

Ore Production.

Your ore production during the year was seriously interrupted by the large amount of reconstruction work at the mines, and also on account of scarcity of miners. Your mines are now in good condition, and increased output is looked for next year from your old mines and from a number of new operations, which will be placed on your producing list, so that hereafter your iron ore production will more nearly place your company in a self-contained position as to its ore supply.

Comparative figures of production are appended:

Year ending June 30, 1907..947,069 gross tons
Year ending June 30, 1906..970,106 gross tons
Year ending June 30, 1905..794,167 gross tons

Coal Properties.

The work of construction and development of your Pennsylvania property at Republic Station has been substantially completed and your Republic mine is now producing sufficient coal to operate 300 beehive ovens. The total number of ovens, however, authorized for construction, was 475; of this number 400 are completed and ready for operation and will be placed on the active producing list as rapidly as the mine output can be increased. The remaining ovens necessary to complete the number authorized are now being built and will be completed as rapidly as possible.

At your Acheson Works, Gans, Pa., a coal washing experiment is being conducted with a view of determining whether this coal can be made available for your northern furnace operations. This coal, without washing, has been found to be too high in sulphur for Bessemer use, but a ready market has been found for the product of the Acheson plant for other purposes.

Your southern mines have been very generally reconstructed, electrical haulage and other improved devices having been installed which has resulted in increased output and decreased cost.

Substantially, all coal mined from your properties is coked, either for the market or for blast furnace use.

Coke Production.

Comparative figures of coke production for the past three years are as follows:

Year ending June 30, 1907.....521,561 tons
Year ending June 30, 1906.....343,485 tons
Year ending June 30, 1905.....256,264 tons

Unfilled Orders.

While your last annual report established a high mark in respect to tonnage of unfilled orders on hand, it is gratifying to say, that present figures showing balance on hand June 30, 1907, indicate totals substantially in excess of the previous best year's showing. A comparison of totals on hand for the past three years is submitted as below:

FINISHED AND SEMI-FINISHED PRODUCT.

June 30, 1907.....448,627 tons
June 30, 1906.....377,349 tons
June 30, 1905.....279,944 tons

No less gratifying is the tonnage of unfilled pig iron orders, comparative figures for which are submitted:

PIG IRON.

June 30, 1907.....74,500 tons
June 30, 1906.....74,607 tons
June 30, 1905.....20,861 tons

While current demand is not as pressing as it was during the early part of the year, yet the volume of new business booked since the first of July, 1907, has been up to your maximum producing capacity. The outlook therefore for future operations is encouraging.

The average number of men employed by the company for the year ending June 30, 1907, was 10,679, against 9,065 June 30, 1906, and 8,593 June 30, 1905.

The balance sheet of June 30, 1907, shows the total assets of the company to be $66,089,179.77.

NEW PLANT OF THE CLYDE IRON WORKS.

The Clyde Iron Works is now building at Duluth a new plant that is expected to be ready for occupancy Jan. 1, 1908. The old shops of the company where a large business has been developed in the manufacture of steam logging machinery, logging tools, lime hydrating machinery and hoisting engines, have been completely outgrown, as the territory into which the company goes has spread all over the timbered areas of the United States, Canada and Mexico. The general foundry work has also grown with the local growth of business in Minnesota and every effort has been made to build a new plant that will handle these different classes of work in the most up-to-date manner and with the latest tools.

The new buildings include a machine shop, 90 x 140 feet, foundry, 90 x 180 feet, stock warehouse, 70 x 92 feet, two stories, pattern storage, 90 x 90 feet, two stories, forge shop, 50 x 200 feet, logging tool shop, 50 x 80 feet, three stories, erecting shop 80 x 160 feet, and an office building, 40 x 65 feet, two stories. The plant covers a ground area 920 feet long by 300 feet deep on the corner of Michigan and Huron streets in West Duluth. The foundry building is entirely fireproof and all the others are brick structures with steel framing. All of the railroads entering Duluth are easily accessible and a complete industrial railway system will be laid out for handling material in and out of the buildings and around the yards, with a locomotive crane for lifting and hauling.

The motive power and equipment will be adapted to each other and will be as modern as can be provided. The plant will be electrically operated with power from the Great Northern Power Co., using motor driven tools throughout. Electric cranes of suitable capacity will traverse every building and an air compressor plant will be installed so that individual pneumatic hoists can be used for the smaller machines. Pneumatic drills and riveting tools will be uniformly used also. The foundry will have two cupolas and as many molding machines as the character of the work will permit installing.

A new catalog has just been issued by this company which not only indicates clearly the scope of its work but is most artistically prepared. Actual photographs of logging operations in all parts of the continent have been reproduced with excellent effect and the entire volume is most tastefully prepared.

Taylor's Great Work.—"On the Art of Cutting Metals" by Frederick W. Taylor, M. E., Sc. D., which was the presidential address presented at the last annual meeting of the American Society of Mechanical Engineers, has been reprinted and bound in cloth by the society, price $3. This or any other publication of the society may be had by addressing the secretary, 29 West 39th street, New York. It is not necessary to send orders through members. None of the publications of the American Society of Mechanical Engineers are copyrighted.

Unions Clash.—Because of the refusal of the company to recognize the organization, 35 members of the Sons of Vulcan have gone on strike at the plant of the Lake Erie Iron Co., Cleveland. The disturbance is somewhat of a novel one as the company now recognizes the Amalgamated Association of Iron, Steel & Tin Workers, and declines to deal with a rival organization in its mill.

SMALL ORDERS

Make Up the Business of Machine Tool Builders in the East.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St.,
New York, Sept. 10.

There is little to feature the current machine tool market. Almost without exception, sales are still confined to odd tools or small lots, though there is every prospect that some railway lists of importance will be ready for announcement in the early future. The tight condition of the money market is doubtless responsible for the absence of more vigorous buying, this stringency being noticeable in the collection difficulties of practically all eastern concerns. This has resulted in a distinct curtailment of new construction work and extensions, as well as in a limiting of replacement work. It does not seem probable that this condition will improve greatly during the fall and the volume of business will, therefore, doubtless be correspondingly affected. At the same time, the extent to which machinery dealers are taking on stock is evidence of their confidence in the outlook. Improved deliveries are reported in a number of lines. Practically all the equipment of the New Jersey Machine Co., Newark, has now been disposed of, going to a number of the larger New York houses.

R. L. Windholz, vice president and general manager of the Vandyck-Churchill Co., has left for a two weeks' fishing trip in Canada, after which he will make a tour of the west before returning to New York.

McClave, Rimmer & Co., 90 West street, New York, have closed contracts for the installation of a 300-horsepower electric plant of the Ridgway Dynamo & Engine Co. at the Milwaukee storage docks of the Lehigh Valley Coal Co. A 400-horsepower installation will also be made at the South Chicago docks of the same company. Other Ridgway contracts closed by this concern include a 150-horsepower engine for the New York & Pennsylvania Paper Co., Willsboro, New York; two 100-horsepower engines to the Grandview Sanitarium, Wernersville, Pa.; and a 350-horsepower engine to the Erie railroad for electric mine haulage purposes at Pittston, Pa.

Considerable buying is now being done for the development of the extensive Cuban ore properties of the Spanish-American Iron Co. This, however, is being done at the Philadelphia office of the company and not at 71 Broadway, New York, as has been reported.

The Parker Boiler Co., through its New York representative, C. B. Nicholson, 90 West street, has taken an important order in connection with the electrification of the Southern Pacific in the Oakland, Cal., district. This calls for twelve 645-horsepower boilers, superheaters and oil burners.

CINCINNATI MACHINERY MARKET.

Office of THE IRON TRADE REVIEW,
124 Government Place, Sept. 10.

All reports this week indicate a more hopeful tone to the situation. There are some nice orders pending and some railroad inquiries are in the hands of dealers. One large order calling for about $20,000 worth of machine tools is under consideration for a new plant. While in some instances and in some lines the orders coming in are not to the liking of manufacturers, still the business as a whole is better and as the summer months pass and heads of departments and proprietors return from vacations, a number of deferred purchases will be made.

It is reported that the crop outlook abroad is not good and this may have some influence on foreign business, but this will be made up in the prosperity that such a condition is likely to bring to this country by giving the farmer increased prices for his crops and bringing in money from abroad.

The Western Machinery Co. has purchased the Chas. Federspil Machinery Co. of 236-238 Broadway. The purchase was outright and the Western Machinery Co. will continue the business under its own name at the present location. The purchase covered a large line of machine tools, machinery, boilers and supplies.

The Mueller Machine Tool Co. has moved into its new plant on Colerain avenue.

THE STEEL PLANT AT DULUTH.

Work on the steel plant proper at Duluth is still preparatory to the actual building operations. Provisional drawings subject to revision have been prepared of some of the departments and according to testimony given before the Railways Commission of Wisconsin last week the capacity of the plant will be as follows: Two 500-ton blast furnaces, 160 by-product coke-ovens with a capacity of 120 tons a day, seven open-hearth furnaces, one blooming mill, and three finishing mills, designed for a capacity of 1,000 tons a day. The testimony before this commission was in accordance with the new Wisconsin law which requires the projectors of a railroad to show the public necessity for such a road being built.

The proposed right of way is for the railroad from the steel plant to the docks on Wisconsin Point. The railroad will be a belt line making connection with all the roads entering Superior and will cross the St. Louis river just south of Mud Lake and then following the abandoned right of way of the Duluth & Winnipeg railway to the Northern Pacific crossing at Pokegama junction. It crosses the Great Northern at Saunders and there the railroad yards will be laid out. From Saunders it has been laid out in an easterly and northeasterly direction to a point at the southern end of Wisconsin Point.

The general merchandise docks and possibly the coal dock for the plant will be built there. Allouez bay is to be dredged and with this material the shore line is to be built out on the bay side for the accommodation of the docks. The cost of the railroad from the St. Louis river to Wisconsin Point, exclusive of the St. Louis river bridge and the right of way, has been estimated at $717,142.

The branch from the Duluth, Mesabi & Northern tracks to the plant for bringing ore in will start at Adolph a few miles above Proctor and run down in practically a straight line to Spirit Lake.

IMPROVED COLLECTIONS.

In connection with current reports of difficult collections, the following statement made a few days ago to THE IRON TRADE REVIEW by the president of one of the largest steel companies in the country is of interest:

"Although the volume of business we are doing is considerably larger than a year ago, our collections show a distinct improvement as compared with that time. Wall street has made the most of certain unfavorable developments of late and their effect has been felt to some extent throughout a wider sphere. But the mere fact that occasionally a manufacturing interest is compelled for the time being to issue some paper in payment of raw materials is not a bad indication. We have had no calls from our customers for assistance and I believe the general feeling is improving."

The extensive iron or properties of the Mineral Rang Iron Mining Co., near Bancroft, Hastings Co., Que., have been opened up by the construction of a spur line connecting them with the Central and British firms including the duties.

Confidence in Stocks Grows Stronger

Returning confidence in the security market has been manifested by developments of the week under review. Although the total volume of business remains comparatively small, there has been a decided buying of securities in small lots for investment, and this movement has diminished the amount of floating stocks available for speculative purposes. An advance of nearly three points in the average price of railroad stocks, as well as a general improvement in industrials measures the return of confidence. A very favorable effect has become noticeable from the action of Secretary Cortelyou in making large deposits of government funds in national banks to relieve the overtaxed money market. From interior points the week showed a gain in cash by New York, indicating the beneficial influence of Secretary Cortelyou's plan. An important development of the week has been the relaxation in money rates, especially in time funds. Time money for 60 and 90 days has dropped ½ per cent, while for five and six months the quotations have fallen to 6 per cent, against 7 per cent in the week previous. Call money's maximum was only 4 per cent, against a maximum of 40 per cent on Wednesday, Sept. 5, 1906. The New York associated banks in the week gained from the interior $956,100, which compares with a loss of $10,772,800 from this source in the week ended Sept. 8, 1906. A decrease in cash of $1,426,800, compared with a decrease of $16,408,100 last year, is shown. The surplus reserve was decreased $1,382,100, making the total reserve at present $7,372,350, against a deficit of $6,577,925 Sept. 8, 1906. Loans decreased $611,800, and deposits fell off $170,800. Trading with the New York exchange in the week amounted to 2,474,250 shares, against 2,158,000 last week and 5,391,400 the corresponding week of 1906. Sales of the United States Steel were 156,100 common, and 20,210 shares preferred.

Copper Stocks.

Boston.—Butte Coalition, closed 19¾; Calumet & Arizona, 142; Calumet and Hecla Mining, 700; Osceola Mining, 105½; North Butte Mining, 67½; Quincy Mining, 88; Green-Cananea, 11½.

New York.—Amalgamated Copper, closed 71⅝, net loss in week ⅝.

Financial Notes.

Recent dividend declarations include the following: General Electric Co., regular quarterly dividend of $2 per share, payable Oct. 15; American Car & Foundry Co., regular quarterly dividends of 1¾ per cent on the preferred stock, and 1 per cent on the common stock, payable Oct. 1.

Application has been made for the listing on the New York Stock Exchange of $3,417,200 common stock of the Tennessee Coal, Iron & R. R. Co. ,the proceeds of the sale of which are to be used in connection with new construction and development work. Seventy-five per cent of the stock has already been paid for.

Commercial failures in the United States during the month of August, according to statistics compiled by R. G. Dun & Co. numbered 850 with total liabilities of $15,197,749, against 788 failures and $8,821,154 in liabilities in the corresponding month, of 1906. Of the month's embarrassments, defunct iron manufactories, foundries, etc., furnished $263,467 liabilities, against $195,000 liabilities in 1906, and machinery and tool plants $3,002,067, against $684,663 in 1906.

The Norwich Nickel & Brass Co., manufacturer of store display fixtures, has awarded contract for its new factory, 51 x 181 feet, three stories, built of brick.

The Frisbie Motor Co., Middletown, Conn., has filed a certificate of incorporation, capital stock $50,000. It will make and deal in gas and gasolene motors. The incorporators are Russell A. Frisbie and Frederick S. Bacon, of Middletown, and Charles B. Frisbie, of Cromwell, Conn.

THE LEADING INDUSTRIAL SECURITIES.

	Clos'ng Quo. Sept. 7	Changes in Week	Date 1907 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Paid	Dividend Date Last Div. Pay.
Allis-Chalmers	6⅜	+ ¼	Sept. 5	19,820 000		.....	.....
Allis-Chalmers pr	19½	− ⅜		16,150 000	7 cum	1¾ Q.	Feb , 1904
American Can	4¾	+ ⅛	Feb. 7	41.233.300		.....	.....
Am. Can pr	49½	+3		41,233,300	7 cum	1¾ Q.	July, 1907
Am. Car and Fdy	40¾	+1¼	June 27	30,000,000		1 Q.	July, 1907
Am. Car and Fdy pr	97⅝	+2⅛		30,000,000	7 n. c.	1¾ Q.	July, 1907
American Loc.	54	+1⅜	Oct. 5	25,000 000	5	1¼ Q.	May, 1907
American Loc. pr	100	.....		25,000,000	7 cum	1¾ Q.	July, 1907
American Ship	60⅞	+ ⅜	Oct. 2	7 600,000	4	1 Q.	June, 1907
American Ship pr	103½	.....		7,900,000	7 n. c.	1¾ Q.	July, 1907
Am. Steel Foundries	7	+1⅛	Oct. 1	15,810,000		.....	.....
Am. Steel Foundries pr.	34	+3		17.240,000	6 cum	1	Aug., 1904
Barney & Smith	65	.....	June 4	2,000,000	4	1 Q.	June, 1907
Barney & Smith pr	128½	.....		2,500 000	8 cum	2 Q.	June, 1907
Bethlehem Steel	105⅝	+ ⅜	April 2	14.862,000		.....	.....
Bethlehem Steel pr	30	.....		14,905,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	31¾	+2¼	March 19	45,000,000*	6	1½ S. A.	Aug., 1907
Cambria Iron	44	.....		8,468,000*	4	2 S. A.	Apr., 1907
Chicago Pneumatic Tool	39	+1½	Feb. 18	6,145 800	4	1 Q.	July, 1907
Colorado Fuel	25⅜	+ ⅞	Oct. 21	34.235,500		1¾ Q.	Apr., 1902
Crucible Steel	7¼	+ ¼	Oct. 16	24.578 400		.....	.....
Crucible Steel pr	68	+2½		24,436,500	7 cum	1¾ Q.	Mar., 1907
Empire Steel	9	+1	Feb. 27	2.281,400		.....	.....
Empire Steel pr	55	.....		2,500,000	6 cum	3 S. A.	July, 1906
Fay & Egan	100	.....	Feb. 19	1 000.000	6	1½ Q.	Aug., 1907
Fay & Egan pr	128½	.....		1,000 000	7 cum	1¾ Q.	Aug., 1907
General Electric	129	+1⅛	May 14	65.167,400	8	2 Q.	July, 1907
Harbison-Walker	13	.....	Jan. 21	18,000,000		.....	.....
Harbison-Walker pr	71½	.....		9,600,000	6 cum	1¾ Q.	July, 1907
International Pump	23	+1¼	June 4	17,762,500		½ Q.	Apr., 1905
International Pump pr	70¾	−1¼		11,350,000	6 cum	1¾ Q.	Aug., 1907
Lackawanna Steel	45	.....	March 13	34,971,400		.....	.....
Lake Sup. Corp	5½	.....	Oct. 2	40,000,000		.....	.....
New York Air Brake	111¾	+1¾	June 18	10,000,000	8	2 Q.	July, 1907
Niles-Bement-Pond	130	.....	Feb. 6	5,000,000	6	1½ Q.	June, 1907
Niles-Bement-Pond pr	105	.....		2,000,000	6 cum	1½ Q.	Aug., 1907
Otis Elevator Co	25	−5	March 18	6,350 300		3 A.	Apr., 1907
Otis Elevator Co. pr	75	−5		6,308,500	6 n. c.	1¾ Q.	July, 1907
Penn. Steel	60	.....	May 13	10,750,000		.....	.....
Penn. Steel pr	98	.....		16,500 000	7 n. c.	3½ S. A.	May, 1907
Pittsburg Coal Co	10	+1⅜	Feb. 11	32 000.000		.....	Nov., 1906
Pittsburg Coal pr	49½	+1½		32,000,000	7 c.	1¾ Q.	Apr., 1905
Pressed Stl. Car	30¾	+1⅝	Feb. 20	12 500,000		1 Q.	Aug., 1904
Pressed Stl. Car pr	85	.....		12.500.000	7 n. c.	1¾ Q.	Aug., 1907
Pullman	158	+2⅞	Oct. 17	100,000 000	8	2 Q.	Aug., 1907
Railway Stl. Spring	37⅛	+1½	March 7	13 500,000	4	2 S. A.	Mar., 1907
Railway Stl. Spring pr	87¼	.....		13,500,000	7 cum	1¾ Q.	June, 1907
Rep. Iron & Steel	24¼	+4	Oct. 16	27.191,000		.....	.....
Rep. Iron & Steel pr	78½	+6¾		20,416 000	7 cum	1¾ Q.	July, 1907
Sloss-Sheffield	48	+1¼	March 5	10,000,000	5	1¼ Q.	Aug., 1907
Sloss-Sheffield pr	95	.....		6 700,000	7 n. c.	1¾ Q.	July, 1907
Tenn. Coal & Iron	135	.....	May 7	29.500 000	4	1 Q.	Aug., 1907
U. S. Pipe & Fdy	31¾	.....	June 26	12,500,000	4	1 Q.	June, 1907
U. S. Pipe & Fdy. pr	80½	+3¼		12.500.000	7 n. c.	1¾ Q.	June, 1907
U. S. Steel	32⅜	+ ⅝	April 15	508,302 500	2 n. c.	½ Q.	July, 1907
U. S. Steel pr	95¾	+ ⅞		360,281,100	7 cum	1¾ Q.	June, 1907
U. S. Steel 5's	95½	+2		463,798 000	5	5 A.	.....
Va. Iron, Coal & Coke	55	+7	Sept. 17	8,641,600		.....	.....
Westinghouse Elec	138	+1	July 24	24 998.700*	10	2¼ Q.	July, 1907
Westinghouse Air Brake	147⅞	+5⅜	Oct. 1	11,000,000*		5 Q.	July, 1907

Par value of shares, $100, except those starred (*), $50.

NEWS FROM MANY INDUSTRIES

New Buyers:—

The Star Brass Works Co., Kansas City, Mo., has been organized with a capitalization of $10,000 by A. A. Wixon, E. E. Norquist, W. D. Shedden and others.

The Knaak Machine Co., Akron, O., has filed articles of incorporation with a capital of $10,000. Those interested are K. Knaak, J. Knaak, L. A. Knaak, S. A. Boyd and L. Boyd.

S. C. Entwistle, Gustof Anderson and H. E. V. Porter have organized the Jamestown Steel Co., Jamestown, N. Y., with a capital of $25,000 to manufacture articles of metal, etc.

The Walnut Machine & Brass Foundry Co., Toledo, has been chartered with an authorized capital of $10,000 by E. L. Rowe, E. G. Schuller, E. J. Vollmer, Amos McDonald and Walter A. Antler.

Concord Foundry Works, Concord, N. C., has been incorporated with a capital of $10,000 to take over the machine works of Blume Bros., by James C. Blume, W. R. Johnson. D. B. Porter and others.

Articles of incorporation have been filed by the Maley Boiler & Sheet Iron Works, Bridgeport, Ill., with a capital of $2,500. The incorporators are John Maley, Frank R. Sarton and Mary Maley.

The Kensington Iron Works Co., Brooklyn, N. Y., has been chartered with a capital of $6,000 by John A. Wilbur, 279 Pearl street, New York; Charles D. Montague, 23 Waldorf court; Whitnel H. Smith, 215 Montague street, both of Brooklyn.

The Royal Cutlery Co., Franklin Township, N. J., iron, steel, cutlery, mechanical implements, etc., has been incorporated with a capital of $25,000 by Charles Hausmann, A. Grief and Charlotte Zuckerman, Bound Brook, N. J.

The National Journal Lubricator Co., East Orange, N. J., manufacturer of machinery, hardware and electrical appliances, has been chartered with a capital of $10,000 by P. R. Bomeisler, Frank C. Ferguson and H. N. Smith of the above address.

The Eastern Laundry Machine Co., Boston, capital $5,000, has been organized to manufacture laundry machinery. The officers of the company are: President and treasurer, W. S. Taylor, 32 Dana street, Cambridge; clerk, R. H. Taylor, 25 Lee street, Cambridge.

The Empire City Iron Works, New York, has filed articles of incorporation with a capital of $10,000 to construct buildings, iron work, etc. The incorporators are B. T. Greenfield, 35 West 115th street; Charles Schindler, 100 Third avenue; Max Rodgur, 54 East 105th street, New York.

The Consolidated Electric Motor & Power Table Co., New York, has been incorporated to manufacture machinery and appliances of all kinds. The capital stock of the company is $10,000, and the incorporators are Carl F. Ahlstrom, Fuller building; William L. Marsh, Richard O. Johnson and Otto J. Ashlstrom, 711 Broadway, New York.

New Construction:

The Canonsburg Steel & Iron Works, Canonsburg, Pa., is making extensive additions to its plant. The company manufactures fine steel and iron sheets for stamping.

The new addition which the Smith & Post Co., Milwaukee, manufacturer of concrete machinery, tools, etc., is preparing to erect will be 80 x 100 feet in dimensions.

Citizens of Pottstown, Pa., are signing a petition to have a certain street vacated to allow the McClintic-Marshall Construction Co. to carry out plans for a large extension to its plant there.

The New Home Sewing Machine Co., Lawrence, Mass., is progressing rapidly with the construction of a four-story and basement brick addition 40 x 200 feet to its machine shop. The work is in charge of the company.

The Wisconsin Engine Co. will erect a machine shop and pattern storage shop at its plant in Corliss, Wis., after plans already prepared. The pattern ship will be 40 x 160 feet, and the storage building 140 x 220 feet, both to be of concrete and brick.

The Ralston Steel Car Co., Columbus, O., expects to have its new extensions completed and ready for operation by Sept. 15. The new shops will materially increase the capacity of the steel underframe department and also the painting department.

The increasing demand for Powell steam engineering specialties has made an enlargement of the plant of the Wm. Powell Co., Cincinnati, a necessity. Plans are being prepared to erect buildings on ground, 37 x 200 feet, recently acquired by the company and to increase the power plant by 200 horsepower.

The Flour City Ornamental Iron Works, Minneapolis, has awarded the contract for a new brick fitting shop 60 x 140 feet, including equipment which will represent an expenditure of about $15,000. Eugene Tetzlaff is president and general manager, and Ernest Rubbert, secretary and treasurer.

The new structures now under way at the plant of the Hardwick Foundry & Machine Co., Dallas, Tex., manufacturer of general railroad castings, structural iron work, frogs and switches, include a new foundry building 80 x 140 feet, to be equipped with a 60-inch cupola and a 10-ton electric traveling crane, and a pattern shop 30 x 50 feet.

The Washburn Wire Co. has awarded the contract to the E. K. Watson Co., Warren, R. I., for its extensive new plant at Phillipsdale, R. I. The plan includes a brick wire mill, two stories, 70 x 154 feet; annealing building, one story, 84 x 96 feet; rod mill, one story, 115 x 180 feet; boiler house, one story, 50 x 96 feet; engine house, one story, 50 x 180 feet.

The contract has been let by the Sterritt Thomas Foundry Co., Pittsburg, for a steel building 45 x 183 feet, with two lean-tos, each 20 x 183 feet, a section of which is nearly completed. The company has also just completed the erection of a three-story building, 48 x 72 feet, to be used as a pattern storage house.

The Vulcan Steam Forging Co., Buffalo, organized to manufacture automobile forgings, tool steel and general forgings, has just awarded the contract for a building which will be fitted with steam hammers, forges and the necessary equipment. The officers of the company are M. F. Duggan, president; W. J. Gamble, vice president, and Edward Clark, secretary and treasurer.

The Buffalo Steel Brake Beam Co., Buffalo, manufacturer of steel brake beams for steam and electric cars, is erecting a second plant at South Buffalo, consisting of a building 60 x 300 feet of brick with concrete foundation. The building is expected to be ready for operations in the fall. The company now has a plant in operation at North Buffalo, but the increasing volume of its trade has made extensions necessary.

The Martin Metal Mfg. Co., Wichita, Kas., recently organized to manufacture sheet metal articles, such as galvanized stock tanks, galvanized cor-

rugated culverts, well casing, eave troughs, etc., and to do a general sheet metal jobbing business, has begun the erection of a brick building 50 x 125 feet, three stories, which it expects to have completed by Nov. 1. Edward Hockaday is president, and F. W. Martin, vice president and manager.

The Geo. J. Meyer Mfg. Co., Milwaukee, recently incorporated, succeeds the Geo. J. Meyer Machinery Co., which has been the style of the business for the past four years. The company recently bought the plant of the Davis Bros. Mfg. Co., which it has since remodeled and enlarged. The company makes a specialty of bottle soaking and washing machinery, and also does tank, general boiler and machine work. Plans are being prepared for a new machine shop 150 x 150 feet to be located on land back of the present plant. The new shop will be provided with ample street and railroad facilities.

General Industrial Notes:—

The Prime Steel Co., Milwaukee, has filed an amendment increasing its capital from $15,000 to $50,000.

At the annual meeting of the stockholders of the Allis-Chalmers Co., which was called Sept. 5 at Jersey City, N. J., an adjournment was taken until Sept. 26. No business whatever was transacted.

The Central Brass & Fixture Works, Springfield, O., recently incorporated, is manufacturing exclusively bath cocks sold under the trade name "Puritan."

The annual meeting of the stockholders of the American Steel Foundries will be held at Jersey City, N. J., Oct. 1, to elect directors for the ensuing year.

Henry Spruks has been elected president, Philip Robinson treasurer, and Arja Williams secretary and acting manager of the Kemmerer Iron & Steel Co., Scranton, Pa.

The Andrews Steel Co., Newport, Ky., has filed amended articles of incorporation increasing its capital stock from $500,000 to $750,000. The erection now in progress of a new steel mill by the company has warranted the action.

The Martin Reynolds Co., Brooklyn, N. Y., recently chartered, is successor to Martin Reynolds & Son, manufacturers of plumbers' brass work, 70-80 Richardson street. No additional building or equipment will be required at the present time.

The Bielenberg Sheet Metal & Roofing Co., Elgin, Ill., organized as successor to Bremer & Bielenberg, contractors and manufacturers of galvanized iron and copper cornices, is planning to operate on a more extensive scale by increasing its force of employes.

The Caldwell & Ward Brass Co., Syracuse, N. Y., general machinist and manufacturer of brass foundry castings, was recently incorporated as successor to the Central City Brass & Mfg. Co., as the business has been known in the past. If any building work will be done it will not be started before spring.

The Columbus Malleable Casting Co., Columbus, O., which was recently organized and took over the old plant of the Buckeye Steel Castings Co. in that city, will be operating at full capacity within the next few weeks. The first heat has been run off, but a large amount of repair work is still to be done on the plant. The company has taken a large contract to furnish castings to the Ralston Steel Car Co.

The business of Charles Ramsey Co., manufacturer of piano hardware, 884 East 134th street, New York, has been incorporated with a capital of $60,000 as the Charles Ramsey Co., to take in Edward D' Amour, formerly a partner of D' Amour & Littleville. The incorporators are: Charles Ramsey, 461 East 140th street; Charles H. Rush, 442 East 134th street, New York, and Edward D' Amour, 1577 Pacific street, Brooklyn.

A patent on a new hoisting bucket has been secured by Alexander McDonald, a foreman at the works of the Buckeye Steel Castings Co., Columbus, O. The purpose of the invention is to overcome the trouble and danger caused in operating the latch that holds the ordinary bucket in an upright or loaded position. Local manufacturers of heavy machinery will place the invention on the market.

The Ohio Steel Foundry Co., Lima, O., has begun operations in its extensive new plant which has an initial capacity of 800 tons per month. Special attention has been paid to making the plant fireproof and well lighted. It has been built as a unit of a larger plant so that extensions can be easily made. The arrangements for the handling of raw material and the transportation of finished and semi-finished products through the plant have been carefully planned.

The Parlin & Orendorff Canadian Plow Co., recently organized, has followed the acquirement of the business of W. Johnson & Co., Ltd., Winnipeg, Manitoba, by the Parlin & Orendorff Co., Canton, Ill., manufacturer of agricultural implements. The branch house will care for the company's trade in the three provinces, Manitoba, Alberta and Saskatchewan. The main office will be at 776 Main street, Winnipeg, where full stocks will be carried. Transfer stocks will also be carried at Calgary and Regina.

The Rockford Boiler & Steel Co., Rockford, Ill., will specialize along the line of building high and low pressure boilers, steam and water house heaters, water plant work of all kinds, smoke stacks, stand pipes and structural shapes, tanks, bridges and boiler repairs. The company has acquired a building in Rockford, which it has equipped with a full complement of modern machinery, pneumatically driven. The officers are: Adolph Copeland, president; W. G. Stoughton, vice president; E. V. Bachrach, secretary and treasurer; B. J. Eckles, manager.

The Crudup Iron Ore Co., Chattanooga, Tenn., recently organized, will operate an iron ore mine at Crudup, Ala. The mine has a rock entry driven horizontally through the cap rock striking the vein about 1,200 feet below the outcrop. The ore, which is red fossiliferous, contains about 43 per cent metallic iron. The output for the year has been sold to the Southern Steel Co. The company is adding about 30 new houses to the old camp and is in the market for the following equipment: One crusher of about 300 tons capacity reducing to 3½ inches, with an engine for the same; one 150 horsepower boiler; one 600 foot air compressor; one hoisting engine, and one picking table or belt. G. W. Nixon is general manager.

The Carbon Steel Co., Pittsburg, has just closed a deal by which it acquires the properties, patents, etc., of the Damascus Nickel Steel Co. and the plant of the Black Cutlery Co., Scottdale, Pa. The Damascus company has been involved in considerable litigation for some time past, and was a plaintiff to one civil action by the Carbon company, in which it was charged with failure to carry out contracts for steel. The Damascus plant is equipped with a 10-inch acid open-hearth furnace; six two-pot crucible furnaces; one 16-inch and one 10-inch bar mill; annealing furnace; cementing furnace; 600-pound, 1,500-pound and 6,000-pound steam hammers. The cutlery plant, which has been idle, will again be placed in operation and extensive improvements will be made to both properties.

Trade Notes:—

The offices of the Sheffield Coal & Iron Co., which have been located at Catasauqua, Pa., have been removed to Sheffield, Ala.

The Columbus Bridge & Iron Co., Columbus, O., has secured contracts from the commissioners of Scioto and Holmes counties for the erection of several two and three-span bridges.

The Pennsylvania Railroad Co. has added to the equipment of its Altoona shops two Northern 12½ ton, three-motor electric traveling cranes with 54 foot span.

The Conneaut Shovel Co., Conneaut, O., has established new agencies in New York with Ely & Williams, 257 Broadway, and in Boston with Barnum & Stone, 161 High street.

Hess, Churchill & Marlow, New York, recently incorporated, have acquired the business of the Empire Mfg. & Supply Co., in that city, and are now negotiating for several special agencies. The firm is mainly selling agent for manufacturers in New York City and vicinity and in foreign trade.

McKesson & Robbins, of New York, have commissioned Dodge & Day, engineers and constructors of Philadelphia, to make the additions to their present power plant. The addition will include a new engine, generator and necessary changes to piping, wiring, etc. Messrs. Dodge & Day made a report on power requirements for this concern some time ago and the present work is the result of that report.

Fires:—

The plant of the Craig-Reynolds Foundry Co., Dayton, O., was heavily damaged by fire recently.

The Summit Foundry Co., Geneva, N. Y., suffered a small loss by fire Aug. 23. Prompt work of the firemen prevented any more serious damage.

The plant of the Waterville Foundry & Mfg. Co., Waterville, N. Y., consisting of a frame machine shop and foundry, was destroyed by fire Aug. 29, causing a loss estimated at $10,000. Insurance is partial.

TRADE PUBLICATIONS.

Pneumatic Tools.—The Cleveland Pneumatic Tool Co., Cleveland, has just issued catalog G, 32 pages, 6 x 9 inches. It presents information concerning Cleveland riveting and chipping hammers, Cleveland four-cylinder drills and other pneumatic tools.

Lathes.—The Bradford Machine Tool Co., Cincinnati, has published a catalog 9¼ x 6¼ inches, 79 pages, devoted to the Bradford lathe. The line described ranges from 14-inch to 42-inch lathes and includes heavy triple-geared machines, tool room lathes, turret lathes and other machines.

Tobin Bronze.—The Ansonia Brass & Copper Co., 99 John street, New York, is disseminating information concerning Tobin bronze by means of a 34-page booklet 4 x 7 inches. This presents various facts concerning Tobin bronze, as specific gravity, weight, strength, etc., and presents tests and testimonials from various users.

Wattmeters.—The General Electric Co., Schenectady, has issued bulletin No. 4527 describing the Thomson polyphase induction wattmeter made for the specific purpose of measuring energy in any two-phase, three-phase or monocyclic circuit. The bulletin gives catalog numbers, capacities, etc., of the various sizes and a large number of connection diagrams showing the method of installation on different classes of circuits.

Crane Controllers.—The Cutler-Hammer Mfg. Co., Milwaukee, is distributing a booklet 3¾ x 8 inches, 24 pages, descriptive of its line of electric crane controllers. In addition to the descriptions and illustrations of five types of crane and hoist controllers, information is presented concerning prices, net weights and shipping weight of apparatus. Connection and dimension diagrams and repair part charts are also included, together with a description of an improved form of contactor for handling heavy currents.

Shapers and Gear Cutters.—Gould & Eberhardt, Newark, N. J., have issued two catalogs devoted, respectively, to shapers and automatic gear cutting machinery. Each are 9 x 6 inches. The catalog devoted to shapers comprises 50 pages. It goes into a detailed description of the construction of the shapers and their attachments and then presents illustrations and specifications of the complete line manufactured, ranging from 14 to 34 inches. Tables of dimensions are presented and a valuable feature of the catalog is 10 pages entitled, "The Shaper as a Manufacturing Tool," showing work which can be successfully accomplished on this type of machine and the methods of accomplishing it. The catalog devoted to gear cutting comprises 60 pages and presents descriptions and illustrations of the automatic gear cutting machine manufactured by this company, ranging from 36 x 9 inches up to 84 x 16 inches in the new type recently brought out, and from 22 x 5 inches to 74 x 14 inches in the regular style machine. A line of heavy pattern horizontal machines is also illustrated, ranging from 120 x 20 inches up to 240 x 36 inches.

FOREIGN TRADE OPPORTUNITIES.

(These inquiries from prospective foreign purchasers are furnished by American consuls to the Government Bureau of Manufactures, Department of Commerce and Labor. Those in which the addresses are omitted are on file at the Bureau of Manufactures, Washington, D. C. In applying for addresses refer to the file number.)

No. 1342. Scrap iron.—A business man in the Canadian Northwest has requested the American consul at the place in question to put him in communication with dealers in scrap iron, as he deals largely in metals and is in the market for at least 5,000 tons of scrap iron at this time.

No. 1346. Electric engines and improvements.—An American consular officer in South America sends names of prospective purchasers of electric engines. He also writes of the proposed electrification of a street-car line, the installation of an electric lighting plant, and the proposed improvement of the electric lighting plant now in operation.

No. 1352. Proposed electric railway.—An American consul in Asia writes that permission for the construction of an electric railway has been granted in his district. The length of the proposed line is about 70 miles, and the estimated cost is about $700,000.

No. 1356. Railway construction.—The Spanish government has authorized the Direccion General de Obras Publicas to invite tenders for the construction of a railway from Avila to Salamanca, through Penaranda de Bracamonte. The competition will be opened on October 29 and will turn, in the first place, upon the reduction of the estimate of 5,286,000 pesetas; (peseta = paper, 17c; gold, 19.3c) and, secondly, in the event of two or more identical propositions being made, upon the reduction of the number of years of the concession. A deposit of 53,000 pesetas is required to qualify any tender, and local representation is necessary.

No. 1358. Dredging materials.—The Ministry of Public Works, Roads, and Communications, Sofia, Bulgaria, invites tenders until October 30 for the supplying of a bucket dredger, three hopper barges, a tug, and a floating steam crane. A deposit of 10,000 francs (franc = 19.3c) will be required on the tender for the dredger; 1,200 francs for each barge; 4,000 francs for the tug; 4,000 francs for the floating crane.

No. 1378. Steel cantilever and girder bridge.—One of the American consular officers in Asia writes that bids have been advertised for in regard to the construction and erection, in every respect complete, of a steel cantilever and girder bridge to connect the city in question with one of its suburbs. He further states that a second larger bridge is to be erected later on.

No. 1380. Panama canal supplies.—Sealed proposals will be received until Sept. 25, 1907, by the Isthmian Canal Commission, Washington, D. C., for the supplying of steam shovels, steam churn drills, air-compressor plant, including air compressors, air receivers, boilers, steel stack, smoke box, pumps, condenser, feed-water heater, oil separator, header, valves and fittings, tandem compound engine and 100-kilowatt generator, induction motors, transformers, rock drills and equipment, steel rails, splice bars, tie plates, track bolts and spikes, frogs, switches, switch stands, steel, iron, rivets, wrought-iron pipe, drill bitts, machinist's hand taps, clamp screws, snatch blocks, molder's bellows, melting ladles, safes, steam whistles, steam traps, wheelbarrows, water coolers, rubber sleeves for suction dredge, canvas belting, manila rope, boiler compound, red lead, borax, cross-ties, piles, lumber, etc. (Circular No. 388.)

No. 1381. Safes.—An American consul in Asia writes that a large and commodious banking establishment is to be erected in the city in question, and suggests that American manufacturers and dealers send catalogs and price lists of their safes to the business firm which he names.

No. 1382. Steel for making trunks.—An American consular officer in Asia reports that a business man at the place in question wishes to communicate with manufacturers of steel such as is used in the construction of trunks in the United States.

No. 1389. Railway construction.—The Norwegian government invites short-term tenders on the construction of the State railway from Drammen to Randsfjord. The estimated cost of the line is somewhat over $1,000,000. Address Minister of Public Works, Christiania, Norway.